AMERICAN EXPERIENCE IN TAXING MINES AND MINERAL LANDS

BY

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I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY SUPERVISION BY LEWIS EMANUEL YOUNG

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CHAPTER I

Introduction

The mineral industry of the United States had an output in 1913 which was valued by the United States Geological Survey at two billion four hundred million dollars.[1] The average value per annum during the period 1909 to 1913 was $2,099,464,494. A large amount of capital is invested in the industry and in certain communities the mines comprise the principal form of wealth. In such districts and in these states in which mining is one of the leading industries the problem of the taxation of mines and of mineral lands has become of great importance.

During the last decade considerable attention has been directed to this subject in a number of states by taxing bodies, and important legislation directly affecting the problem has been enacted in Pennsylvania, West Virginia, Ohio, Michigan, Wisconsin, Minnesota, Oklahoma, and in a number of the Rocky Mountain states.

It may be said that the agitation in regard to the taxation of mines has been due largely to:

1. The large dividends paid by a few mines.

2. The presumption that mines in general pay dividends at a much higher rate upon the capital invested than other industrial enterprises.

3. The ownership of mines by stock-holders residing outside the state or district.

4. The difficulty experienced by county and township offi-

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[1] Mineral Resources of the United States, 1913, p. xvii.

cials in appraising mines and mineral lands.

5. The wide-spread popular notions regarding the public interests or public rights in mineral resources.

6. The suggested methods of conserving mineral resources or regulating their use by means of taxation.

7. The general and increasing tendency to shift the tax burden to industries.

8. Tax reform movements in general.

9. Increased public expenditures.

It is the purpose of this study to assemble some of the available data regarding the history and the presents methods of mine taxation, including the laws of the states, the regulations of tax officials, the rules and methods used in appraising mines for the purpose of taxation, and the statistics of taxes paid by different types of mines operating under the various state laws.

Nature of Mining Property

Definitions. The definitions of mining property have been developed largely through the acts, opinions, and decisions of Congress, of the various state legislatures, of the state and Federal courts, and of the various taxing officers and commissions. There is now but little difference of opinion in regard to the definition of such terms as mineral, mine, and mining right, and in the classification of the various kinds of mining property.

In the mining industry, "mineral" is now defined broadly to include "every description of stone and rock deposits, whether metallic substances or entirely non-metallic".[1] This definition is now followed by most of the American and English courts. New York courts have recently held that "mineral" includes all inorganic substances.[2] "Geologic bodies which consist mainly of a single useful mineral - for instance, beds of pure gypsum or coal - or which contain, throughout or in places, valuable minerals that can be profitably extracted - for instance, veins containing disseminated gold - are called 'mineral deposits'."[3]

The term "mineral land" has received considerable attention from the courts on account of the variety and the distribution of minerals found upon the public domain. Federal and state courts have finally agreed that the term has an economic rather than a strictly geologic or mineralogic meaning as used in the Federal statutes regulating the entry and the sale of the lands of the public domain. One of the most concise and illuminating definitions

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1 Nor. Pac. Co. v Soderberg, 99 Fed. 506, 1900.
2 White v Miller, 200 N. Y. 29, 1910.
3 Lindgren, W. Mineral Deposits, p 2. New York, 1913.

of "mineral land" has been developed by Curtis H. Lindley as follows:

"The mineral character of the land is established when it is shown to have upon or within it such a substance as - (a) Is recognized as mineral, according to its chemical composition by the standard authorities on the subject; or - (b) Is classified as a mineral product in trade or commerce; or - (c) Such a substance (other than the mere surface which may be used for agricultural purposes) as possesses economic value for use in trade, manufacture, the sciences, or in the mechanical or ornamental arts;- And it is demonstrated that such substance exists thereon or therein in such quantities as render the land more valuable for the purpose of removing and marketing the substance than for any other purpose, and the removing and marketing of which will yield a profit; or it is established that such substance exists in the lands in such quantities as would justify a prudent man in expending labor and capital in the effort to obtain it."[1]

This definition contemplates the classification of land as either "mineral" or "agricultural" by the Federal Government depending upon its value for either mining or agriculture. It introduces the idea of both quality and quantity of minerals and the possibility of the profitable working of the minerals. (This same idea is incorporated in a recent decision of the United States Court in which it is held that the term "mineral lands" includes "all such as are chiefly valuable for their deposits of a mineral character which are useful in the arts or valuable for the purpose

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[1] Lindley on Mines, I., 174.

of manufacture.")[1] The Joint Committee on Tax Revision in Virginia in 1914 advised that mineral lands be defined by law to be "lands containing a workable seam or vein of mineral of commercial value".[2]

Various of the state courts have adopted definitions as broad as that noted. For the purpose of taxation the state of Utah[3] has included gypsum under the term "other valuable mineral deposits". In a recent appraisal of mining properties in Michigan it was agreed by the appraisers that deposits of salt, gypsum, limestone, brick-clay, and marl should not be appraised on a mining basis as "none of these materials is inherently valuable in the ground, its value depending entirely upon the labor that is put upon it, or on its commercial situation".[4]

Formerly the term "mine" was used in a narrower sense than now. The idea of subterranean excavation distinguished a mine from a quarry. But with the extensive development of open workings the term came to include underground mines, open-pit mines, and quarries.[5] Bouvier defines a mine as a "pit or excavation made for the purpose of obtaining mineral". In the broad sense this definition includes wells bored to secure minerals, quarries, and those excavations which are commonly called mines.

Sovereignty and mineral rights Before the Revolution, in practically all grants of land there was reserved for the Crown a one-fifth interest in all gold and silver mines, following the

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1 Nor. Pac. v Soderberg, 188 U. S. 526.
2 Report of Joint Committee on Tax Revision, p 35, Richmond, 1914.
3 Nephi Plaster & Mfg. Co. v Juab Co., 93 Pac. 53; 33 Utah 114.
4 Michigan State Board of Tax Commissioners, Appraisal of Mining Properties of Michigan, p 76, 1911.
5 Bouvier, J. Law Dictionary, p 180, St. Paul, 1914.

theory that these minerals belonged to the Crown. The charter of North Carolina in 1584, which was granted to Sir Walter Raleigh, reserved "the fifth part of all the ore of gold and silver that might be gotten and obtained".[1] The grant by King James of a charter to Virginia included the right to explore for minerals from the 34th to the 45th parallel but reserved one-fifteenth of the copper as well as one-fifth of all gold and silver.[2] The later charters of Virginia[3] and the charter of Massachusetts[4], New Hampshire[5], Maryland[6], Maine[7], Rhode Island[8], Connecticut[9], and Pennsylvania[10] made a reservation of an interest, usually one-fifth, in the gold and silver.

The United States courts held[11] that the entire title to the minerals, including the royal title to gold and silver which had been reserved by the Crown in Maryland, passed to the State, "the interest of the proprietor by confiscation, and that of the king by conquest".

Within the area included in the original thirteen states the Federal Government has held no public lands or title to minerals, but by the several cessions of the states a large tract west of the Alleghanies, containing valuable mineral deposits, came under Federal control. Influenced by the idea that gold and sil-

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1 Poore, B. P. Charters and Constitutions, 2 Vols., Vol. II., p 1380, Washington, 1877.
2 Thorpe, Federal and State Constitutions, Vol. VI., p 3784, Washington, 1909.
3 Ibid. p 3796.
4 Ibid. pp 1834, 1847, 1850.
5 Ibid. pp 2434, 2437.
6 Poore, Charters and Constitutions, Vol. II., pp 1271, 1274.
7 Thorpe, Vol. III., p 1627.
8 Poore, Charters and Constitutions, Vol. II., p 1602.
9 Thorpe, Vol. I., p 536.
10 Thorpe, Vol. V., p 3036.
11 147 U. S. 282.

ver should belong to the Crown, which idea had prevailed almost universally up to this time, the Continental Congress[1] on May 20, 1785, in enacting laws regarding the public lands, reserved "one-third part of all gold, silver, lead, and copper mines to be sold or otherwise disposed of" as Congress should thereafter direct. This act continued in force until 1789.

In his plan for the disposition of the public lands presented to the first Congress in July, 1791, Alexander Hamilton was silent on the subject of mineral lands.[2] On May 18, 1796, Congress directed United States surveyors to note the true location of all mines, salt licks, and salt springs. Certain salt lands in Ohio were reserved by Congress for the "future disposal of the United States". In 1803 Congress placed at the disposal of the president the sum of three thousand dollars for the purpose of developing the salt springs on the Wabash.[5]

The leasing of lead lands and salt springs on the public domain was authorized by Congress on March 3, 1807.[6] These leases were not to run for more than five years. The first leases under this law were issued in 1822 and the first lead in quantity was produced in 1826. The royalties and rents were difficult to collect and the entire system proved very unpopular. In 1834 the operators

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1 Jour. of Congress, Vol. X., p 118.
2 Amer. State Papers, Vol. I., p 4.
3 I. U. S. at Large, 466.
4 Public Acts of Congress Respecting the Sale of Public Lands, p 51, 1838.
5 2 Stat. at Large, 235.
6 2 Stat. at Large, 488.

of the mines and smelters refused to make further payments.[1] The cession by the Chippewas of the Lake Superior District on March 12, 1843, added that important mineral district to the public domain and a large number of leases were granted in that district in 1845, but the issue of these leases was discontinued in 1846. The United States courts had held that Congress has power to lease as well as to sell public lands.[2]

Congress had previously, March 3, 1829, authorized the sale of lead mines reserved in the state of Missouri.[3] Other minerals of the public domain were still reserved from sale. On July 1, 1846 the lead mines and lands of Illinois, Arkansas, and the territories of Wisconsin and Iowa were opened to sale following the plan of the Missouri act.[4] Finally, on March 1, 1847, Congress authorized the sale of lands containing "copper, lead, and other valuable ores after geographical examination and survey".[5] The Chippewa lead lands were offered for sale March 3, 1847,[6] and the mineral lands of the Lake Superior District in 1850.[7]

The pre-emption law of September 4, 1841 had excluded "all lands on which are situated any known salines or mines".[8]

Up to this time no important deposits of gold or silver had been discovered upon the public domain and the Federal laws made no reference to these metals except incidentally and under the

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1 Whitney, J. D. Metallic Wealth of the United States, Philadelphia, 1854.
2 14 Pet. 526, 1840.
3 4 Stat. at Large, 364.
4 9 Stat. at Large, 37.
5 9 Stat. at Large, 146.
6 Ibid. 179.
7 Ibid. 472.
8 5 Stat. at Large, 453.

inclusive term of "mineral".[1] It was not until July 13, 1866, that Congress provided for the sale of gold and silver mines and lands.[2] Later, legislation was enacted providing for the sale of all types of mineral deposits upon the public domain. When the patent papers are issued the complete title to the surface and to the mineral rights is transferred to the citizen.

By the enactment of these laws the system of private ownership of mineral deposits has been developed in the United States. The Federal Government has completely surrendered its title to the minerals, and the mineral lands have passed to private ownership without any actual or implied reservation of a public interest greater than or different from the public interest in the mineral soils.

Chief Justice Field[3] said that in no instance has the United States "asserted any right to the mines as being reserved from the operation of the patents. The patent has uniformly been regarded as transferring all interests which the United States could possess in the soil and everything imbedded in or connected therewith. Whenever mines have been claimed, it has been as a part of the lands in which they were contained and when minerals have been reserved from sale or other disposition, it has only been by reserving the lands themselves. It has never been the policy of the United States to possess interests in lands in connection with individuals".

R. W. Raymond, the leading American authority on mining

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1 Donaldson, Public Domain, Washington, 1884.
2 14 Stat. at Large, 137.
3 Moore v Smaw, 17 Cal. 199, 1861.

law said, "The right of the land owner is supreme; and even when the Federal Government has legislated concerning mining titles it has done so for public lands only, and in its capacity as their owner, with the power, given to the land owner by the English common law, of separating the estate in minerals from the estate in soil and disposing of either upon any terms which it might dictate"[1].

There has evidently been nothing in the history of the development of the mining customs or the mining laws of the United States to warrant any assumption that the mining industry should be taxed upon a different basis from other industries operating upon property secured without reservation by complying with Acts of Congress.

Congress has enacted laws regulating the location of claims upon the mineral deposits of the public domain, but these laws are not effective in all the states. The public domain has never included any lands in the original thirteen states nor in Vermont, Kentucky, Maine, West Virginia, and Texas. The public land in Tennessee was granted to the state by the United States. The public lands in Ohio, Indiana, Illinois, and Iowa were largely disposed of before the enactment of the general mining laws. The lead lands of Illinois, Iowa, Arkansas, Missouri, and Wisconsin and the lands of Michigan, Minnesota, and Wisconsin valuable for copper and iron were sold under special laws. All the public lands in Oklahoma were declared to be agricultural; however, the federal mining laws have been extended by Congress to certain lands acquired from the Indian tribes. The general mining laws enacted by Congress

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[1] Mineral Resources of the United States, p 1004, 1883-1884.

are effective on the public domain in Alaska, Arizona, Arkansas, California, Colorado, Florida, Idaho, Louisiana, Mississippi, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming, and parts of Oklahoma.[1]

When the Union was formed there were extensive tracts of public lands within the states and it devolved upon the states to provide equitable laws under which citizens might acquire title to these lands. The mineral deposits commanded special legislation in only a few states, it being held generally that complete title to the minerals should pass from the state to the individual when the title to the surface passed. In 1843 an act of the Pennsylvania legislature established the principle that the entire estate of the Commonwealth passed with the patent granted by the State. The Georgia courts held in 1844 that, unless specific reservation is made, title to minerals passes with the land.[2]

The notable exception to this practice of the states has been New York. In 1786 the New York legislature directed the reservation of minerals on state lands. Gold and silver were held to belong to the sovereign, which in this instance was the state. This right of sovereignty was reasserted by the state legislature in 1828.[3] At present the New York statutes include[4] the statement that all mines of gold or silver discovered anywhere in the state become the property of the state; the state also claims mines discovered on lands owned by persons not citizens of the United States;

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1 Lindley on Mines, p 38.
2 State of Georgia v Canatee, 3 Kent 378.
3 3 Kent 378.
4 Laws, 1909, Vol. IV., Ch. 50.

all mines discovered upon lands belonging to the state; and all mines discovered upon the lands of a citizen of the United States provided that the ore on an average shall contain less than two equal third parts in value of copper, tin, iron, and lead or any of these metals. Upon the discovery of minerals on the lands of the state, citizens of the state, after complying with certain regulations, may work the mines if they pay a royalty to the state of two percent of the market value of the product. The discoverer is exempted from paying royalty for twenty-one years and thereafter is required to pay a royalty of only one percent.

The state of Texas owned extensive tracts of land and originally (1837) reserved the minerals, but in 1866 the State provided for the sale of mineral lands without reservation.

Michigan has enacted laws regarding precious metal mines, specifying that mines containing gold and silver in any proportion are the property of the people of the State in their right of sovereignty.[1] However, provision has been made that this law shall never apply to mines in lands owned by citizens of the State.

California held that the State possessed the regalian right to the precious metals in the public lands of the United States. The early ruling of the courts was reversed in 1861[2] and California has abandoned its claim to rights in the precious metals. California has never asserted any regalian rights in the precious metals in private lands. "Although apparently not expressly passed upon in other states, it is not probable that, if the question ever arises, any regalian right to the precious metals would be recognized in any of them."[3]

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1 2 How. Ann. Stat. Sec. 5475, 5476.
2 17 Cal. 199.
3 Shamel, C. H. Mining, Mineral, and Geological Law, p 26.

<u>Property in mines and mineral lands</u> Mining operations may be conducted under various types of ownership of the minerals or of rights to work them:

(1) The title to the surface and to the minerals beneath the surface and within the property lines may rest in one person.

(2) The title to the surface may carry with it the right, called the "extralateral right"[1] to follow the vein of ore on its dip outside certain property lines.

(3) The title to the minerals may be entirely separate from the surface right.[2]

(4) The right to mine may be secured as a grant or lease upon the payment of a rental or of a royalty.

(5) The mining right may be simply a license or grant for a short period of time, revokable at the pleasure of the owner of the mining right.[3]

In certain states in which the title to the minerals has been acquired from the Federal Government by the location of mining claims upon the public domain and in accordance with the Acts of Congress of 1866 and of 1872, the title to the surface of such a mining claim upon a lode or vein carries with it the right to follow the vein on its dip and between vertical planes through the parallel end lines. The privilege of following the vein on its dip, called the "extralateral right", gives to the locator upon a vein the right to mine ore outside his property lines but similarly it takes from him the right to any minerals within his property

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[1] U. S. Rev. Stat., Sec. 2322.
[2] 1Pa. 726; 84 Ala. 228; 96 Ill. 279; 137 Pac. 386.
[3] Barringer and Adams The Law of Mines and Mining in the United States, p 67; 53 Pa. 216; 123 N. Y. 298; 32 Fed. Rep. 177.

lines and occurring in veins which do not outcrop within his own surface boundaries. In other words, the discoverer of a vein who locates a claim upon the public domain in accordance with the federal laws and the state statutes, acquires the unlimited and the perpetual mining right upon that particular vein between vertical planes through the parallel end lines of his claim.

When such a claim is patented according to the federal laws a deed is issued and the claim becomes taxable by the state as other real estate. Prior to patenting, the vein itself remains the property of the United States and is not subject to taxation. The possessory right (of the locator) to the claim or location can be transferred or sold, is held to be property, and is subject to taxation by the state and the local authorities.[1] In some states this posessory right is classed as personal property[2] and in others, as real estate.[3]

The title to the minerals may be entirely separate from the soil and the title to the minerals may be divided so that the right to mine coal or only one seam of coal may be in one estate, another seam of coal may belong to a second, the right to drill for oil and gas may belong to a third, and the right to all other minerals may be reserved for a fourth.[4] The right to oil and gas is recognized in the same way as is the right to solid minerals in place.[5] Such a separation of interests may be made by sale or by reservation, and a deed for the mining rights is executed the same as for the surface rights.

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1 State v Moore, 12 Cal. 56; Hale and Norcross, G.& S.M.Co. v Storey Co., 1 Nev. 105; Forbes v Gracey, 94 U. S. 762.
2 Waller v Hughes, 11 Pac. 122, 1886.
3 1 Mont. 245.
4 Nor. Pac. v Mjelde, 137 Pac. 386.
5 Kelly v Oil Co., 50 Ohio St. 317.

The mining right as a lease or grant for a definite period is recognized by the courts as a property right and is taxable. Mining operations are frequently carried on under lease when the mining rights are severed from the surface. Under such conditions the following interests exist within and upon the same tract of land: (a) The surface right, (b) the mineral right, (c) the leasehold.

License to mine for a short period is usually not recognized as a separate interest for purposes of taxation.

The following kinds of property owned by mining operators are recognized and distinguished by the statutes of various states: (1) Surface rights when valuable for other than mining purposes; (2) surface improvements used for other than mining purposes; (3) surface improvements used only in conducting the operations of one mine or a group of mines owned by the same interests; (4) surface improvements used in conducting a custom business, such as a smelter or mill which receives ore in addition to that produced by the mines owned by the company operating the smelter or mill; (5) unpatented mineral land; (6) undeveloped mineral land; (7) mining rights separate from the surface; (8) non-producing mines; (9) unprofitable mines; (10) profitable mines; (11) mined mineral product; and (12) mining leases.

<u>The nature of the earnings of mines</u> The value of mining property is determined either immediately or remotely by the earnings it will return upon the capital invested. Mining operations exhaust mineral deposits and the returns from the sale of the product must be sufficient to pay all operating expenses, a dividend upon the capital invested sufficient to justify the mining risk

entailed, and to amortize the entire capital invested within the period of the assumed life of the mine. It has been unusual for American metal mining companies to create a sinking-fund to replace the capital invested although this has been done by some interests. They have instead paid larger dividends and have left it to the stock-holders to set aside annually in their personal accounts some suitable item for redeeming the capital invested. The American mining dividend therefore must generally be considered on an entirely different basis from the dividend upon other industrial investments because it represents both a dividend and an annuity to reimburse the stock-holder for the sum he has invested for his stock. If the mining company is actually providing a sinking-fund in anticipation of the depletion of the mineral deposit, this fact must be recognized. In other words, the management of such a mine would be maintaining its assets constantly at a certain amount. If no sinking-fund is thus maintained the assets of the company will be constantly decreasing with the depletion of the mineral deposit and ultimately not only the earning power of the mine will be lost but the entire value of the mine will be represented by second-hand equipment on the property frequently so remote from a market that it will be of no value whatever.

In appraising mines for the purpose of taxation and in estimating the returns from mines and incomes from mining investments it will be necessary to keep clearly in mind the real nature of the earnings of mines.[1]

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[1] Marshall says: "A royalty is not a rent, though often so called. For, except when mines, quarries, etc., are practically inexhaustible, the excess of their income over their direct outgoings has to be regarded, in part at least, as the price got by the sale of stored-up goods - stored up by nature indeed, but now treated as

private property; and therefore the marginal supply price of minerals includes a royalty in addition to the marginal expenses of working the mine. The royalty itself on a ton of coal, when accurately adjusted, represents that diminution in the value of the mine, regarded as a source of wealth in the future, which is caused by taking a ton out of nature's storehouse." Marshall, A., Principles of Economics, 6th Ed. Book V., Chap. X., Sec. 6. See also Ibid. Book IV., Chap. III., Sec. 7; Taussig, F. W., Principles of Economics, Vol. II., Chap. 44, p 92.

Mineral Resources of the United States

<u>The geographical distribution of the mineral deposits</u> Valuable mineral deposits are scattered widely throughout the United States. The statistics of the United States Geological Survey show that of all the states only Rhode Island and Delaware produced less than one million dollars worth of minerals in 1912. Of the total value of the output of the United States the New England states produced 1.4 percent; the Middle Atlantic states 30 percent; the Southern states 12.4 percent; the Central states 29.7 percent; the Mountain states 16.6 percent; and the Pacific states 6.1 percent. Twenty-eight states are important producers of coal, twenty-four produce some iron-ore, twenty have produced and eleven are now important producers of petroleum, nine produce copper, sixteen produce gold, twenty-six quarry granite, fifteen mine lead and zinc, thirty quarry limestone on a large scale, twelve mine gypsum, and thirty-one quarry sandstone.

While a number of the states have not developed important metalliferous deposits or extensive and valuable deposits of mineral fuels, yet most of the states possess mineral deposits of economic importance which are contributing toward the welfare of the commonwealth and of the nation.

<u>Importance of the mineral resources</u> The value of the mineral resources in various states and in the nation as a whole has undoubtedly been realized to a large degree by citizens, by officials, and by economists at home and abroad. Leroy-Beaulieu in discussing the mineral industry of the United States[1] says:

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[1] Leroy-Beaulieu, P. The United States in the Twentieth Century, New York, 1907, p 223.

"Clearly no country has been so richly dowered by nature with mineral resources of all sorts, and however high may be our estimate of the qualities of its people it is not unfair to say that the marvelous wealth of the sub-soil of the United States contributes more than aught else to its economic strength."

It seems important then that there should be adopted a policy both for the development and the use of mineral resources upon the public domain and within lands privately owned which will result in the most beneficial use of these resources under our existing form of government.

At the present time, according to the United States Geological Survey[1], this country is contributing a large part toward the world's annual production of minerals. "The United States mines nearly 40 percent of the world's output of coal and produced 65 percent of the petroleum in 1913. Of the more essential metals, 40 percent of the world's output of iron ore is raised from American mines, and the smelters of the United States furnish the world with 55 percent of its copper and at least 30 percent of its lead and zinc."

An estimate of mineral resources can not, of course, be more than an approximation which attempts to predict what quality of mineral deposits may eventually be of economic importance. For example, the coal resources of the United States, exclusive of Alaska, have been estimated at fifteen hundred billion short tons.[2] At the present rate of production and domestic consumption the supply would last many years; at an increasing rate of consumption,

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1 Smith, G. O. Our Mineral Reserves. Bull. 599, U.S.G.S., Washington, 1914.

2 Ibid. p 11.

the life of the deposits would be greatly shortened. It is outside the field of this investigation to enter into a discussion of the extent and value of these resources, or to propose policies for their development and use, but it seems appropriate to direct attention to the policy and the experience of the nation and of the political units in dealing with the mineral resources.

Policy Regarding the Mineral Resources

<u>Federal policy</u> During the period from 1785, at which time the Continental Congress first reserved rights in minerals, to 1866, when Congress provided for the sale of the lode lands of the West, there seemed to be considerable difference of opinion as to the policy that Congress should pursue in disposing of the mineral lands of the public domain. The almost complete failure and the unpopularity of the leasing system, as tried in the Mississippi Valley and in the Lake Superior region, caused President Polk in a message to Congress, December 2, 1845, to recommend that the mineral lands be placed upon the market and sold. Directly thereafter Congress opened to sale the mineral lands of the Middle West. However, the specific reservation of minerals by the pre-emption laws and in the grants to railroads and to states continued the problem on an even greater scale, particularly after gold was discovered in California in 1848. Various schemes of government ownership and of government leases were suggested, but, with the experience with the lead leases serving to warn against the leasing system and with the miner pointing to the generous policy of the government in disposing of agricultural lands, Congress finally, in 1866, adopted the policy of selling the mineral lands. This policy has been extended to include all types of mineral deposits.

The revenue secured from the sale of these mineral lands has been comparatively small and the federal government has derived no additional revenue from them except through internal revenue taxes, licenses, and the corporation and income taxes; but the federal policy has encouraged the rapid development of the mineral resources of the Western states.

State policy relating to mines The policies of the various states in dealing with mineral resources have varied widely. The policy of a state may change with the economic development of the state. One of the following plans may be adopted:

A. The state may retain the title to the minerals and may either (1) carry on mining operations as a state enterprise or (2) may permit citizens to open mines and for this privilege the state may charge a royalty or a rental.

B. The state may sell the lands or the mining rights and then (3) tax the mines or mining rights, or (4) may exempt them from taxation, or (5) may grant bounties or premiums in order to encourage and hasten the development of the mineral resources.

The granting of an exemption from taxation or of a bonus or a reward may occur during the development period of mining or during the decline of a particular mine, in the latter case in order to prolong the period of operation.

Some of the states, notably Minnesota, have retained large areas of public land containing extensive mineral deposits and have leased these to mining operators, thus securing considerable state revenue. In some states large grants of land have been set aside for the public schools and for institutions of higher learning. Upon exploration some of these tracts have been found to contain valuable mineral deposits. The policy of leasing these lands has frequently been adopted. Such state and school lands are generally exempt from taxation. The effect of this reservation of large tracts of land, exempt from taxation, within important industrial districts is to increase the burden oflocal taxation upon the adjacent property.

Exemptions. The states that have exempted mines from taxation have planned to assist the entire mining industry during a stated period or to assist single mines during the development period.

(1) Every mine may be exempt during the years immediately following its opening. Maine has exempted mines from taxation for ten years from the date of opening. Improvements and lands are taxed as is other property.[1] Vermont exempts mines and quarries together with improvements and machinery for a period of five years. This period may be extended by the vote of the municipality.[2]

(2) All mines may be exempt during the period between specified dates. Colorado exempted all mines, except surface improvements, for ten years after the admission of the state to the Union.[3] Louisiana permitted the exemption of mining companies from local taxes from 1900 to 1910.[4] In 1885 Michigan suspended the specific tax on mines, as it applied to gold, silver, and lead mines, for a period of five years.[5] The Arkansas constitution of 1874 provided that the General Assembly might by general law, exempt from taxation the capital invested in any or all mines in the state for the term of seven years following the ratification of the constitution.[6]

(3) All mines may be exempt from certain taxes during any year that the output is less than a certain amount. An Oregon statute provides that, if the output of a domestic mining company does not exceed one thousand dollars in the preceding year, the

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1 Rev. Stat. of Maine, 1903, Chap. IX., Sec. 3 and 6.
2 Vermont Pub. Stat., 1906, Sec. 499.
3 Colo. Const. Art. X., Sec. 3.
4 Constitution, Art. 230.
5 Laws of 1885.
6 Const. of Ark., 1874, Art. X., Sec. 3.

company may pay ten dollars in lieu of the annual license fee.[1] This same principle applies in a number of states which classify mines as producing and non-producing. Mines having an output in any year valued at less than a specified sum are exempt during that year.

(4) All mines may be exempt from taxation until a dividend is earned. New Hampshire taxes the surface improvements but exempts the mine itself until the first dividends are declared.[2]

(5) Mines may be exempted at the discretion of the state legislature. The constitution of Idaho permits the legislature from time to time to make such exemptions as shall seem necessary and just.[3]

Bounties. Industrial bounties have been granted by various states from time to time in order to encourage mining.[4] Bounties for the production of salt were granted by New York in 1822, by Michigan in 1859[5] and by Alabama in 1861. In 1827 Vermont offered a premium of five hundred dollars for the first five hundred bushels of salt manufactured in the state. Utah offered one thousand dollars in 1854 to any one who would open a good coal mine within forty miles of Salt Lake City.[6] In 1887 Nevada offered a series of rewards for the improvement of metallurgical methods in the reduction of ores containing the precious metals and in 1901 offered a reward of one thousand dollars to the first person who should produce five barrels of crude petroleum from a well within the state. Similar prizes were offered for the production of natural gas and artesian water.

1 Laws of 1913, Chap. 73.
2 N. H. Pub. Stat., 1901, Chap. 55, Sec. 4.
3 Const., Art. VII., Sec. 5.
4 Powell, F. W. Industrial Bounties, Quart. Jour. Econ., Vol. XXVIII., p 191. 1913.
5 Repealed in 1869.
6 Utah Legislative Jour., 1860-1861, p 73; 1862-1863, p 65.

Review of United States Mining History

The development of systems of taxing mines logically followed the development of the mining industry. Prior to 1848, mining did not hold the important position as a national industry that it now holds. When the Federal Government was organized in 1789 there was but little mining within the national boundaries. Probably the most important mines were those for iron which had been opened along the Atlantic coast.[1] The first sixty years of our national life were notably a period of acquisition of territory rich in minerals, and a period of exploration and of discovery. Among the noteworthy events and developments in the mining industry were the opening of the anthracite fields in Pennsylvania, the mining of bituminous coal in Pennsylvania, Maryland, and other eastern states; the use of anthracite and of bituminous coal in the blast-furnaces; the development of gold mining on a small scale in Georgia and several other southern states; the opening of copper and iron mines in Michigan; of zinc mines in New Jersey, of lead mines in Missouri, Illinois, Iowa, and Wisconsin; and the discovery of gold in California in 1848. With the great development of the precious metal deposits there came also extensive industrial development and the opening-up of deposits of the base metals and of fuels. Prior to 1848 little attention was paid to the taxation of mines.

The period from 1848 to 1859 was notably a placer mining period. The value of the output of gold and silver for the period is estimated at $625,000,000. The discovery of the Comstock and

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1 Swank, J. M. American Iron Trade in 1876. Philadelphia, 1876.

other lodes in the Rocky Mountain region in 1859 opened the bonanza period of lode mining in United States mining history.

During the years from 1859 to 1890 there was substantial development and extensive scientific exploration of the mineral resources of the nation.[1] The development was general throughout the states, but only the richest and the easily accessible deposits were opened. Taxation of mines received attention in the western states and territories, but in the Middle West and in the East relatively little attention was paid to this phase of taxation. With the increase in population in the mining districts and with the development of extensive agricultural and industrial interests in the mining states and districts, tax payers in general have endeavored to place a relatively greater tax burden on the mines and mineral lands. This movement came largely during the period following 1890.

The discovery of iron ore on the Mesabi iron range in Minnesota in 1890 has been referred to as the last and greatest of the mineral discoveries. The period which then opened has been notable particularly on account of the large-scale development of low-grade mineral deposits, although some rich mines and districts have been opened during the period. Following the introduction of the steam-shovel into mining there began a search for mineral deposits, which, although of poor quality, were extensive and regular enough to warrant the construction of large plants for mining, handling, and treating the ores. The development of the Mesabi iron range, of the so-called "porphyry copper mines", and of the low-grade gold deposits of the West, has placed this type of metal

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[1] Hewitt, A.S. A century of mining and metallurgy in the United States, Trans. Amer. Inst. Min. Engrs., 1876, V., 164.

mining upon a basis that suggests comparisons with manufacturing and similar enterprises. The value of the mineral output of the United States increased from $606,476,380 in 1890 to $2,445,805,017 in 1913.[1]

The development of mining has played an important part in the industrial history of many of the states and of the nation as a whole.[2] In several states considerable state revenue has been secured from the mines and a number of the activities of the states have been made possible on account of the revenue thus derived. Other states have derived comparatively little public revenue from mining in proportion to the earnings of the industry. In the succeeding chapters attention will be directed particularly to the problems of taxation in the states, federal taxation receiving attention only in Chapter II.

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CHAPTER II

Federal Taxation of Mines

The Federal Government derived no revenue from mines and mineral lands, except from leases and from the sale of lands, until the first Federal income tax was imposed August 6, 1861.[1]

Revenue has been secured through internal revenue taxes upon output, mining licenses, income taxes, and the corporation excise tax.

<u>Internal revenue taxes</u> The products of mines have been subjected to internal revenue taxes, notably during the Civil War. On July 17, 1862, Congress levied upon the producer "on all mineral coals, except such as are known in the trade as pea coal and dust coal, three and a half cents per ton, provided, that for all contracts of lease of coal lands made before April 1, 1862, the lessee" should pay the tax. (Public Laws of U. S., 37th Cong. 2d Sess., Chap. 119, Sec. 75.) The laws of March 3, 1863 amended the foregoing act and provided that the tax on all coal mined and delivered at the mines on contracts made prior to July 1, 1862, should be paid by the purchasers thereof. (37th Cong. 3d Sess. Chap. 74.) The rate was raised to five cents a ton on June 30, 1864. (38th Cong. 1st Sess., 1863-1864.) The Act of March 3, 1865, specified further in regard to the rates upon pea coal. (38th Cong. 2d Sess., 1864-1865.) A duty of one dollar a barrel was levied on crude petroleum or rock-oil, March 3, 1865. (38th Cong. 2d Sess., 1864-1865, Chap. 78.) A tax of one-half percent was levied upon bullion produced.

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[1] 12 Stat. at Large 309.

Mining license   A Federal license was required by the Act approved March 3, 1865, of all persons, firms, or companies employing others in mining, providing the receipts of the mine exceeded annually one thousand dollars. The charge for this license was ten dollars. (*Ibid.,* Chap. 78.)

Corporation excise tax   By an Act of August 5, 1909, a special excise tax was levied upon the business of corporations.[1] All corporations, joint stock companies and associations organized for profit and having a capital stock represented by shares were subject to this tax, which was levied "with respect to the carrying on or doing business." The rate was fixed at one percent upon the entire net income, over and above five thousand dollars, received from all sources during each year exclusive of amounts received as dividends upon stock of other corporations subject to the corporation excise tax.

In addition to the deductions for operating expenses actually paid within the year out of income, necessary charges for maintenance, losses sustained, and for depreciation might be deducted.[2] Various changes in the interpretation of the law were made during the period it was in force.[3]

Several mining companies claimed that mining was not a "business" in the sense used in the excise law and an attempt was made by some of the companies to recover the taxes paid. In Stratton's Independence v. Howbert,[4] the plaintiff claimed that,

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[1] 36 Stat. at Large 112. 61st Congress, Sess. 1. Chap. 6, Sec. 38.

[2] Regulations No. 31, U. S. Internal Revenue, Dec. 3, 1909.

[3] U. S. Treasury Dept., T. D. No. 1742. See also Eng. and Min. Jour., XCV., 488.

[4] 231 U. S. 403 (1913).

"The proceeds of mining operations result from a conversion of the capital represented by real estate into capital represented by cash, and are in no true sense income." The defendant claimed, "The mineral as it lies in the ground is capital, but when it is extracted and sold, the result is a flow, and income has accrued." The court, in discussing the nature of mining said, "The peculiar character of mining property is sufficiently obvious. Prior to development it may represent to the naked eye a mere tract of land with barren surface, and of no practical value except for what may be found beneath. Then follow excavation, discovery, development, extraction of ores, resulting eventually, if the process be thorough, in the complete exhaustion of the mineral contents so far as they are worth removing. Theoretically, the entire value of the mine, as ultimately developed, existed from the beginning. Practically, however, and from a commercial standpoint, the value - that is, the exchangeable or market value - depends upon different conditions. Beginning from little, when the existence, character and extent of the ore deposits were problematical, it may increase steadily or rapidly so long as discovery and development outrun depletion, and the wiping out of the value by the practical exhaustion of the mine may be deferred for a long term of years". The court held: (1) Mining corporations are not different from other corporations in the application of the law. (2) The proceeds of ore sales resulting from mining operations conducted on a corporation's own premises are income just as is the case with any other income. (3) The value of the ore before being mined can not be regarded as subject to depreciation and treated as such.[1]

Income taxes On August 6, 1861, Congress enacted a law providing for a Federal income tax. (12 Stat. at Large 309.) This act levied a tax of three percent on all income in excess of eight hundred dollars. It was repealed and then re-encated July 1, 1862. Ibid., p 473.) The new law imposed the same rate, three percent, upon the excess of income above six hundred dollars up to ten thousand dollars, and five percent on the excess over six hundred dollars when the income exceeded ten thousand dollars. The rates and the amount of exemptions were changed a number of times until finally by the Act of July 14, 1870, (16 Stat. at Large 257.) the tax was discontinued after 1871.

Again in 1894 Congress enacted a law providing that incomes should be taxed from January 1, 1895, to January 1, 1900. While this act never became effective, it is interesting to note the rules which were to control in determining income from mines. (Gould, J. M. and Tucker, G. F. The federal income tax explained. Boston, 1895.) Incomes from coal mines were to be reported and no deductions were to be made on account of the diminished value, actual or supposed, of the coal vein or bed by mining. (Regulations relative to income tax, p 31, Washington, 1894. Bout. 274.) The profit on the sale of mined coal was held to be the difference between the amount received and the expense of production, excluding all deductions for the personal service of the miner and family,

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1 In the District Court of Colorado it had been held (207 Fed. 419. 1912) that the words "net income" as used in the Act of August 5, 1909, do not contemplate an allowance in favor of a corporation operating a mine for ore in place extracted from the property; the net income being the value of what is extracted after deducting the cost of extraction and treatment and the cost of administering the corporation with a reasonable reservation for contingencies.

plus the amount paid for each ton to the owner or lesser of the mine. (7 Int. Rev. Rec. 60.) Leases were held to be personal property. (7 Ibid., 59; 2 Ibid., 44.) Rent from mines, or royalty, was held to be income and was to be included in the returns. A mining claim arising from the location of a mine on the public mineral lands was held to be personal property, and the difference between the actual cost and the price received from the claim was the profit. (4 Ibid., 124.)

In order to insure the constitutionality of a Federal income tax, a constitutional amendment[1] was adopted authorizing Congress to levy taxes on incomes. On October 3, 1913, Congress enacted an income-tax law,[2] which superseded the special excise tax on corporations, enacted August 5, 1909. "Insofar as it relates to the tax levied against corporations, the income-tax law is not essentially different from the special excise tax law; except that it is a little broader in its scope and comprehends certain organizations which are not subject to the special excise tax."

"As applied to corporations the essential differences between the old law and the new are these:

1. The excise-tax law applied only to corporations, etc., no matter how created or organized.

2. The excise-tax law levied a tax equivalent to one percent on the entire net income over and above $5,000; the income-tax law levies the tax of one percent upon the entire net income, without any specific exemption.

3. The excise-tax law required all income from whatever

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[1] Amendment XVI., February 25, 1913.
[2] 38 Stat. at Large 114.

source to be returned; the income-tax law does not require income from obligations of the United States or of any State or Territory or political subdivision thereof to be returned for taxation.

4. The excise-tax law authorized corporations to deduct from gross income dividends received on the stock of other corporations subject to the tax, while under the income-tax law such dividends are not exempt from the tax in the hands of the corporations receiving them.

5. Under the excise-tax law the interest deduction was limited to the amount of interest actually paid within the year on an amount of indebtedness not in excess of the paid-up capital stock outstanding at the close of the year, while under the income-tax law credit may be taken for an amount of interest actually paid within the year on an amount of indebtedness not in excess of one-half of the sum of the interest-bearing indebtedness and the paid-up capital stock outstanding at the close of the year.

6. Under the excise-tax law every corporation subject to the tax was required to make its returns on the basis of the calendar year, while under the income-tax law corporations may, by properly designating for this purpose a fiscal year, make their returns on the basis of the fiscal year so established."[1]

In computing net income for the purpose of the normal tax the deductions allowed are as follows: First, the necessary expenses actually paid in carrying on any business, not including personal, living, or family expenses; second, all interest paid within the year by a taxable person on indebtedness; third, all national, state, county, school, and municipal taxes paid within the year, not in-

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[1] An. Report, Commissioner of Internal Revenue, 1914, p 14.

cluding those assessed against local benefits; fourth, losses actually sustained during the year, occurring in trade or arising from fires, storms, or shipwreck, and not compensated for by insurance or otherwise; fifth, debts due to the taxpayer actually ascertained to be worthless and charged off within the year; sixth, a reasonable allowance for the exhausting wear and tear of property arising out of its use or employment, not to exceed, in the case of mines, 5 percentum of the gross value at the mine of the output for the year for which the computation is made, but no deduction shall be made for any amount of expense of restoring property or making good the exhaustion thereof for which an allowance is or has been made; Provided, That no deduction shall be allowed for any amount paid out for new buildings, permanent improvements, or betterments, made to increase the value of any property or estate; seventh, the amount received as dividends upon the stock or from the net earnings of any corporation, joint stock company, association, or insurance company which is taxable upon its net income.

The normal tax is levied upon the entire net income of corporations. In the case of mining corporations "a reasonable allowance for depletion of ores and all other natural deposits not to exceed 5 percentum of the gross value at the mine of the output for the year for which the computation is made". The deductions permitted include a "reasonable allowance for depreciation by use, wear and tear of property, if any".[1]

The term "gross value"[2] as used in describing a limit to the amount which may be deducted in the return of individuals

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[1] Regulations 33, U. S. Internal Revenue, Jan. 5, 1914.

[2] Ibid., Art. 6, Regulations 33.

and corporations as depreciation in the case of mines is held to mean "the bona fide market value of ore, coal, crude oil, and gas at the mine or well, where such value is established by actual sales at the mine or well; and in case the market value of the product of the mine or well is established at some other place than at the mine or well, or on the basis of the bullion or metallic value of the ore, then the gross value at the mine is held to be the value of the ore, coal, oil, or gas sold, or of the metal produced, less transportation, reduction, and smelting charges".

"Depreciation of coal, iron, oil, gas, and all other natural deposits must be based upon the actual cost of the properties containing such deposits. In no case shall the annual deduction on this account exceed 5 percent of the gross value at the mine (well, etc.) of the output for the year for which the computation is made."[1]

"If the rate of 5 percent shall return to the corporation its capital investment prior to the exhaustion of the deposits, the rate on which the annual deduction for depletion is based must be lowered in accordance with the estimated number of years it will take to exhaust the estimated reserves. In case the reserves shall be in excess of the estimates no further deduction on account of depletion shall be made where the capital investment has been returned to the corporation."[2]

Corporations leasing oil and gas lands are required to estimate depreciation upon the cost of the lease and not upon the estimated value or production of the wells.[3]

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[1] Ibid., Art. 141.
[2] Ibid., Art. 142.
[3] Ibid., Art. 144.

"Corporations operating mines (including oil or gas wells) upon a royalty basis only can not claim depreciation because of the exhaustion of the deposits."[1] "Unearned increment will not be considered in fixing the value on which depreciation shall be based."[2]

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[1] *Ibid.*, Art. 145.

[2] *Ibid.*, Art. 146.

CHAPTER III

History of Mine Taxation in the States

The general property tax was firmly established in the American colonies[1] before mining was developed as an important industry. As has been previously noted, in a number of the states special concessions were granted in order to encourage the rapid development of the resources, the mines being considered essentially as contributors to industrial activity rather than as sources of public revenue.

There is practically no mention of the methods of assessing and taxing mines in the state histories of taxation for the period prior to 1840. As the mineral deposits were opened and as the earnings from mines increased the older states applied the existing tax laws to mines. In 1846, Michigan departed from the common practice of applying only the general property tax to mines by levying a specific tax as a percentage upon the gross value of

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[1] The property tax was the leading form of direct levy in all the proprietary provinces. (Osgood, The American colonies in the seventeenth century, Vol. II., p 349). Maryland levied on property first in 1654 and regularly after 1666. (Md. Arch., Assembly 1666, p 235.) In South Carolina the property tax appeared first in 1682. In 1683 New York began regularly the system of a penny in the pound of the value of all property. (Orders and Warrants, M. S. 1674-1685, p 108; Schwab, History of the New York property tax, Pub. of the Amer. Econ. Assn., V., 5.) Ability as measured by the ownership of property came to be the basis of taxation in New England. In 1634, Massachusetts adopted the policy of levying taxes according to the estates held. (Douglas, Financial history of Massachusetts, p 18.) The property tax was developed later in Virginia and in a different form. (Ripley, Financial history of Virginia, Columbia University, Studies in political science, IV., 18. 1893) See also

Madison, James. Territorial taxation of land. Ex. Doc. 7th Congress, 1st Session, January 14, 1802.

Wolcott, Oliver, Sec. Systems of taxation now prevailing in the several states. Ex. Doc. 4th Cong., 2d Sess., Dec. 14, 1796.

Report reviewing methods of state taxation, American State Papers 7, Finance No. 1. 4th Cong. 2d Sess. House Doc. 100, Dec. 14, 1796.

the products of the iron and copper mines. In 1853 the Michigan legislature first imposed a tonnage tax on coal, iron ore, and smelted copper or copper mineral. Pennsylvania, using the general property tax, began at an early date to recognize mineral rights, separate from the land, as a form of property subject to taxation. The courts definitely approved the practice in 1857.

Some of the mining states and territories of the West followed the experience of the Eastern states in framing their state tax laws. The general tax laws were applied to the mines in California, Washington, Oregon, North Dakota, and South Dakota. But in the other Western states attempts have been made to devise special systems of taxation for mines.

Prior to the enactment of the Federal mining laws, the miners established local mining districts with their own local laws and local government. Some public revenue was necessary. In the year 1861 the miners in a district of what is now Boulder County, Colorado, then Nebraska Territory, levied a tax at a uniform rate per mining claim. The same system was adopted by other Western mining districts. The records of the Gold Hill District in Colorado show that on October 2, 1861, a resolution was adopted in opposition to "any system of taxation of quartz or other mining claims having anything to do with the books or with the recording of claims".[1]

In 1862, three years after the Comstock Lode was discovered, Nevada inaugurated the system of taxing the proceeds of mines. The state retained four-tenths of the revenue derived and

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[1] 10th Census, Vol. XIV., p 352.

the remainder was distributed among the counties.[1]

Arizona, in 1864, gave the mining companies the option of paying a tax on general property or an annual tax on net proceeds and fifty cents per one hundred dollars valuation of real estate. However, in 1866 Arizona repealed the law of 1864 and taxed mining companies on invested capital and capital stock, but re-encated the proceeds tax in 1871. In 1881 Arizona again returned to the general property tax for taxing mines.

Maryland attempted to collect a tonnage tax on coal in 1874, but the law was held unconstitutional as being in restraint of interstate commerce, for it required the payment of the tax by the transportation companies.[2]

The Michigan tonnage tax was declared unconstitutional in 1875 as being in restraint of interstate commerce; it discriminated between ore smelted in the state and that shipped to smelters outside the state.[3] The tonnage law entire was repealed in 1891.

Minnesota collected a tonnage tax from iron mines from 1881 to 1896, at which time the state law was declared unconstitutional.

After having exempted mines, Colorado in 1887 imposed a tax upon mines on a valuation based on the gross proceeds.

There seems to have been a tendency in the Rocky Mountain states to tax only profitable mines and to lay whatever burden was apportioned to the mining industry of a state or of a district upon the successful mines, entirely exempting the developing and the un-

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[1] Laws of Nevada, 1862, p 131.
[2] State v. Cumberland & P. R. Co., 40 Md. 22.
[3] Jackson M. Co. v. State Auditor, 32 Michigan 488.

profitable mines. A number of the states have taxed the possessory right to unpatented claims upon Federal and state lands and have also levied a tax, under the general property tax laws, upon all improvements on unpatented claims and unprofitable mines.

Mining corporations have usually been subject to the same fees, licenses, and corporation taxes as corporations chartered for other purposes.

In reviewing the tax history of a number of states that have used the general property tax there is little to note that has been distinctive of the experience of these states in dealing with the mining industry when compared with the taxation of other industries and the property used in these industries. In the following section, there is given a review of the experience of a number of the states that have had especial problems to solve or that have employed methods other than the general property tax.

Arizona

Arizona contains important deposits of copper. Mining is one of the important industries of the state, the output being valued at $67,497,838 in 1912 and $71,429,705 in 1913.[1] It is reported that there was some primitive mining as early as 1650, particularly in Pima County. Gold was discovered in the Santa Rita Mountains in 1769.

During the period from 1855 to 1863 mining did not develop rapidly owing to trouble with the Indians and lack of transportation facilities.[2] In 1864 mines were taxed[3] as other property, but were permitted to pay instead of such taxes an annual tax of five percent upon the net proceeds and fifty cents per one hundred dollars of value of real estate owned. In 1866 the law of 1864 was repealed and mining companies were taxed on invested capital and capital stock. By an act of December 15, 1868, all mining companies were relieved from the payment of taxes in 1868 beyond those assessed on their real and personal estate within the territory. The law of 1871 specified mines or possessory rights as real estate.[4]

A tax on net proceeds of mines was enacted February 4, 1875.[5] In determining the gross proceeds deductions for operating expenses were to be made but not to exceed 90 percent of the gross value of the ore when such gross value was between thirty and sixty

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[1] Mineral resources of the United States, 1913, p xxvi.

[2] For the history and geology of mining districts of Arizona see U.S. Geological Survey, Professional Papers 12, 21 and 43.

[3] Arizona was organized as a territory-Feb. 24, 1863.

[4] Laws of Arizona, 1871, Act of Feb. 18, Sec. 5.

[5] Laws of Arizona, 1875, Act. of Feb. 4.

dollars per ton. Not over eighty percent might be deducted from the gross value of ore worth sixty to one hundred dollars; not over sixty percent on ores of one hundred to two hundred dollars gross value; and not to exceed forty percent on ores worth more than two hundred dollars; an added deduction of twenty dollars per ton was allowed on all ores that were wasted before reduction, and all ores valued at less than thirty dollars were exempt from taxation.

By an Act of February 9, 1877, the levy was made two percent upon the net proceeds, twenty-five percent of the revenue went to the territory and the remainder to the county.[1]

The law of 1875, taxing net proceeds, was repealed in 1881 and mining companies were taxed under the same laws that applied to other corporations.[2]

The revised statutes of 1901 specify that the term land as used in the section of the law of taxation "shall not be so construed as to include mining claims either lode or placer".[3] During this period there was a general impression that mines were not paying their full share of taxation and in 1903 the Governor of Arizona stated that the mining industry was allowed to escape its proper valuation and that a just and equitable assessment and taxation of the producing mine would not work a hardship on the mines as all would then bear their share and the tax rate could be reduced.[4]

In 1907 the legislature again enacted a law which provided for the taxation of mines according to their production.[5] Mines

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1 Comp. Laws of Arizona, 1877, p 354.
2 Laws, 1881, p 137.
3 Rev. Stat., 1901, Sec. 3835.
4 Report of Governor, 1903, p 13.
5 Laws of Arizona, 1907, Chap. 20, p 23.

were divided into two classes, (1) productive and (2) unproductive. All claims that produced $3750 or more during the year, and groups of claims belonging to the same owner that have produced $3750 or more per claim were included in the class of productive mines. The second class included all mines and mining claims not in the first class. All mines in this class are taxed as other property. Unpatented mines or mining claims which were unproductive were exempt from taxation except the improvements, which in all cases were taxed.

Owners of productive mines of the first class were required to report under oath the tonnage and market value of the ore produced. The assessor was required to determine the gross value of the output "on the average market quotation of each such metal in New York City and 25 percent of the gross value in money" was taken as constituting the total amount from which the levy of taxes for the current year was made. No other tax was levied upon mines in this class except a property tax on machinery, equipment, and personal property. When the surface of mining claims was used for other than mining purposes, it was taxed in the same manner as other surface property similarly used.[1]

Governor R. E. Sloan, in an address made at the second meeting of Governors[2] defended the system of assessing and taxing mines then operative in Arizona on the ground that few mines were sold and the market value of mines could not readily be determined

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[1] The Phoenix correspondent of the Engineering and Mining Journal commented upon this law as follows: "Generally, the law has been considered fair and reasonable, although, as is the case with any application of the gross output for a taxation standard, the low-grade mines pay out of proportion to the high-grade mines, considering net earnings as the actual value standard of any operation. Apparently the mine owners are not dissatisfied with the form or substance of the present law." Eng. & Min. Jour., 1912, XCIII., 500.

[2] Proc. Second Meeting of Governors, Washington, 1910, p 146.

by assessors who were without the means of determining their value by actual examination and test." He reported that in 1910 the method in use met with "general approval" although when the system was adopted in 1907 "there was much and strong opposition" to it.

On April 30, 1912, the law of 1907 was repealed and mines were then taxed as other property upon an ad valorem basis.[1] In 1912 the Tax Commission increased the assessed valuation of mines from $14,000,000 to $32,000,000. Two members of the Tax Commission advised[2] the adoption of a law providing for a classification of mines and assessment according to both the gross and the net value of the output. These two commissioners favored a valuation upon an ad valorem basis if the system of valuation upon gross and net output was not adopted. The third commissioner preferred valuation and taxation upon an ad valorem basis but for the time favored "a graduated tax on the producing mines." In 1913 the Arizona legislature enacted a law providing for the valuation of mines according to the gross and net output.[3] The law was in force only two years as specified in the act. This act classified mining property as (1) producing mines and mining claims and (2) non-producing mines and mining claims, which included all mining property not in class 1.

Producing mines and mining claims were defined to be those which, after deducting the expenses of operation and such other expenses as were permitted by the Act, yielded net proceeds, or a number of claims worked under one ownership, anyone or all of which

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[1] Arizona Laws of 1912, p 24. The constitution provides that "the manner, method, and mode of assessing, equalizing, and levying taxes in the state of Arizona shall be such as may be prosecuted by law." Const. Art. IX., Sec. 11.

[2] Spec. Rep. of State Tax Com. of Ariz. on Mining taxation, 1913, pp 6, 8, and 16.

[3] Revised Stat. of Arizona, 1913, Sec. 4980-4994.

after deducting the expenses of operation and such other expenses as were permitted, yielded net proceeds.

The tax commission determined the gross product and the net proceeds. The mining companies made annually a certified statement to the Tax Commission and upon the data thus secured, the gross value of the product was determined. The prices used were based on New York quotations for the year covered by the report. The net proceeds were determined by subtracting from the gross the following: "All moneys spent for necessary labor, machinery, and supplies needed and used in the mining operations, for betterments necessary in and about the workings of the mine, for the treatment and reduction of ores, for the repair and betterment of mills and reduction works used and operated in connection with the mine, for transporting the ore and the conversion of the products into money or its equivalent." Such expenditures were not to include "money invested as the purchase price of the mine, in real estate or the construction of new mills or reduction works, nor the salaries or any portion thereof, of any persons, agent or officers not actually and consecutively engaged in working the mine or in personally superintending the management thereof within the state of Arizona".

Mines were valued by the Commission at four times the net proceeds plus one-eighth of the gross. Upon this valuation there was levied the same rate as was applied to property in general. All mines not having net proceeds were taxed as was other real estate. Improvements of all kinds upon both producing and non-producing mines or claims were not exempted from taxation. The law specified that nothing in the act should be "taken or construed to be a tax on either the gross or net proceeds of earnings", the purpose of the act being simply to secure a basis for valuation.

In 1911 the mines paid 19.3 percent of the state taxes; in 1912, 31.7 percent; and in 1913, 37.2 percent.[1]

There was introduced in the Second Legislature, 1915, a bill[2] providing for the assessment and taxation of mines upon practically the same basis as specified in the Act of 1913. However the gross, according to the bill, would have been computed upon the average New York price of metals for the preceding ten years. This bill failed to pass and, no other legislation having been enacted, mines will be taxed as other property.[3]

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1 2d Bien. Report, Arizona State Tax Com., 1914, p 12.

2 S. B. 15.

3 The presumption is that the Arizona Tax Commission will value the mines of the state somewhat after the plan of the Michigan system.

Miscellaneous references
on Arizona

Zander, C. M. Problems and progress in Arizona. Proc. Nat. Tax Assn., 1914, VIII., 122.

------ Taxation of metalliferous mines. Ibid., 338.

Proceedings Territorial Board of Equalization, Arizona, August, 1911, pp 3-6. Taxation of non-producing patented mines.

Unsigned articles and notes.

Eng. and Min. Jour., XLII., 26; XC., 449; XCIII., 500; XCV., 1069; XCVI., 346.

Mining and Sci. Press, CV., 816; CVI., 505, 804, 1003.

Mining Science, LVII, 17.

Mining and Engineering World, XL., 635.

Colorado[1]

Colorado has been an important producer of minerals for many years. It is reported that gold was found on Cherry Creek near Denver in 1849, but the real mining began with the discoveries of gold in the Clear Creek District in 1858 and 1859.

The early records[2] of the mining districts show that before Colorado was organized as a territory, the local rules provided for minor forms of taxation such as road taxes at a flat rate per mining claim. Output taxes were not favored in the early days.[3] The State Constitution provided[4] that for a period of ten years from July 1, 1876, mines should be exempt from taxation except the net proceeds and surface improvements. The constitution specified also that the general assembly should provide general laws for assessing property and collecting taxes. As the legislature failed to enact any laws for the taxation of mines until April 4, 1887, there was no authority for collecting taxes based upon either the net proceeds and the actual value of the improvements or the mines. Attempts were made, notably in Lake County, to force the mines to pay some taxes. In Stanley v. Little Pittsburg Mining Company[5] it was held by the court that locally mines could not be taxed until the legislature had provided machinery for carrying out the permission and instructions of the constitution. In 1882 the legislature enacted a bill providing

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[1] Organized as a territory Feb. 28, 1861, and admitted to the Union Aug. 1, 1876.

[2] Raymond, R.W. Historical sketch of mining law. Mineral resources of the United States, 1883-1884, pp 988-1004.

[3] The Gold Hill District, Boulder Co., went on record Oct. 2, 1861 as opposing a tax system which required an inspection of books.

[4] Art. X., Sec. 3.

[5] 6 Colorado 416, 1882.

for the assessment of mines and for ascertaining the net proceeds but the act was vetoed by the Governor. On April 4, 1887, the Colorado legislature[1] enacted laws providing for the taxation of mines previously exempt under the constitution.[2] By these laws[3] no mines or mining property were exempt from taxation and producing mines, having an output exceeding in value $1000 were to be assessed at one-fifth of the gross proceeds to be determined by the assessor. Unpatented claims were taxable upon the same basis, the right of possession being recognized as the object of the assessment.

Prior to the Act of 1887, mines paid no taxes except upon surface improvements. This act continued in force until 1902 when a new law was enacted[4] which for the purpose of assessment and taxation classified mining property as producing and non-producing. When the gross value of the product exceeded five thousand dollars, the property was classed as producing; all others were non-producing. A certified annual statement of output and operating expenses was required from all mining companies. Net proceeds were determined by deducting from the gross the actual cost of mining, transporting, and treating the ore. The value of the mine was fixed at one-fourth of the gross unless the net exceeded this amount in which

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1 In 1886 the Colorado Supreme court was asked by the State Legislature to render an opinion in regard to the constitutionality of certain proposed measures providing for the assessment and taxation of mines. The several proposed measures attempted to fix by law the actual amount at which mining claims should be assessed. In the opinion of the court (9 Colo. 623) the assessing of property was delegated to certain officers and was not to be attempted by the state legislature.

2 Art. X., Sec. 3.

3 Laws of 1887, p 340.

4 Laws of Colorado, 1902, p 79, Sec. 81 Par. 3883.

event an amount equal to the net proceeds was taken as the value of the property.

The assessor was instructed that he should not assess a non-producing mining claim at a greater sum per acre than was assessed against the lowest producing mine or mining claim situated in the same locality.[1] Possessory rights to mining claims were taxable. Surface improvements were valued separately and taxed at their full cash value. Mines of coal, iron, asphaltum, quarries, and lands valuable for other metals, minerals or earths were assessed and taxed as other property.

In 1913 important changes were made again.[2] Under the law of 1913, producing mines and mining claims are now valued at a sum equal to one-half of gross proceeds plus all the net proceeds.

There has been considerable dissension over the definition of gross proceeds as used in the law. On November 16, 1913, the Colorado District Court defined "gross proceeds" as "the amount of money received after deducting freight and treatment charges".[3]

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1 Sec. 3891.

2 Colorado Session Laws, 1913, Chap. 139 amending Sec. 5619-5626 of Rev. Stat. 1908.

3 The difficulty arose on account of conditions in the Cripple Creek District. Some of the mines sold the gold ore to local ore-buyers, others shipped to mills and smelters outside the district, and others treated the ore locally in their own plants. The mine operator who sold ore received as "gross proceeds" from the ore-buyer an amount which was the "net" after the treatment, transportation, and other charges were deducted. The question then was whether "gross" should mean the actual value of the recoverable gold in the ore, or the real sale price (for the operator) of the ore. In commenting on this situation a member of the Colorado Tax Commission said: "We recommended to the legislature the bill changing the assessment to 50 percent of the gross and all of the net from the metalliferous mines. The supreme court had defined gross, and then later on changed the definition and made it mean the sum received by the owner from the sale of his ores. The result of this decision makes it necessary to deduct the transportation, reduction and treatment

The assessed valuation[1] of the metal mining property during the years 1912, 1913, and 1914 follows:-

	1912	1913	1914
Assessed valuation	$18,012,830	$46,042,067	$41,468,531
Percent of total valution of state	4.27	3.52	3.17

In the fifteen principal mining counties of the state the valuations during the years 1912, 1913, and 1914 have been as follows:[2]

		Mining property	All other property
Assessed value	1912	$17,896,172	$36,947,647
	1913	43,564,803	109,446,426
	1914	38,667,874	107,134,265

charges so that the consequence has been a considerable reduction in the valuation of the mining counties. This, of course, throws the burden of taxation onto other property in those counties. Somewhere between 8 and 10 millions of dollars of valuation were lost, I believe this year." J. B. Phillips in "Legislative and administrative problems in Colorado", Proc. Nat. Tax Assn., 1914, VIII., 96.

1 3d An. Rep., Colorado Tax Commission, 1914, p 5.

2 Ibid., p 11.

Miscellaneous references and notes on mine taxation in Colorado:

Brownlee, A.G. System of taxing mining properties. Mining World, 1910, XXXIII., 609.

Downie, C.J. Historical review of mine taxation in Colorado. Mining Science, 1905, LXXI., 23.

Link, C.P. Discussion of Report of Committee on Taxation of Mines and Mineral Lands. Proc. Nat. Tax Assn., 1913, VII., 403.

Phillips, J.B. Legislative and administrative problems in Colorado. Proc. Nat. Tax Assn., 1914, VIII., 96.

Webb, D. L. Taxation of mining property. Proc. Amer. Min. Cong., 1913, XVI., 345.

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Cripple Creek District. Eng. and Min. Jour., LXXXVI, 1178, 1273; XCII., 1080. Mining Science, LXV., 34, 254.

General notes on Colorado. Eng. and Min. Jour., XXXV., 83, 85; XC., 876, 924, 1222; XCV., 871, 1021.

Mining and Sci. Press, CVII., 824.

Mining Science, LXVI., 225.

Bull. Amer. Mining Congress, Nov. 1910, p 218; Dec. 1910, p 233; March, 1911, p 43.

Idaho[1]

Although gold was discovered on the Pen d'Orielle River in 1852, extensive gold mining did not begin until the following decade. Today, Idaho is famous particularly for lead-silver mines and mines of this character were not opened until 1873.[2]

In 1866 Idaho Territory first enacted laws regulating mining locations. The Constitution of 1889 did not provide specifically for the taxation of mines, but requires that taxes shall be uniform upon the same class of subjects.[3]

In 1903, the legislature enacted a law providing that mines should be taxed upon the basis of net profits, which are determined from certified statements made annually by the mining companies. The net profits[4] are determined by deducting from the amount received for the ore the actual expenditures of money and labor in extracting, transporting, reducing, and marketing the

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1 Organized as a territory Mar. 3, 1863; admitted to the Union July 3, 1890.

2 The Wood River District became an important producer of lead in 1881, and in 1884 the first discoveries were made in the Coeur d'Alene District.

3 Art. VII., Sec. 5.

4 Rev. Code, Sec. 1864.

ore, and for supplies and machinery. Unpatented mining claims are not taxed.

In his message to the legislature in January, 1913, the Governor suggested that the law providing for the tax upon net proceeds is probably unconstitutional.[1]

Louisiana

The only important mineral products of Louisiana are sulphur and petroleum. The value of the output in 1912 was $15,357,841 and in 1913, $21,011,828.

Louisiana has taxed mines and mineral lands under the general property tax.[2] A law of 1910 imposing an annual license tax on the business of extracting minerals was held to be unconstitutional.[3]

In 1910 a joint resolution of the legislature was submitted to the people. The resolution provided that "those engaged in the business of severing natural resources, as timber and minerals, may also be rendered liable to a license tax, but in this case the amount to be collected may be either graduated or fixed according to the quantity or value of the product at the place where it is severed".[4] The constitutional amendment which included a provision for assessing and taxing other kinds of property was not adopted.[5]

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1 Message of Governor, January, 1913, p 32.

2 Laws of Louisiana, 1898, Act. 170.

3 Etchison Drilling Co. v. Flournoy, 59 So. Rep. 867.

4 Acts of 1910, Act No. 154.

5 Hart, W. O. Tax reform in Louisiana. Proc. Nat. Tax Assn., 1912, VI., 77.

By an amendment adopted November, 1902, the capital, machinery, and other property employed in mining operation was exempted from parochial and municipal taxation for ten years from January 1, 1900.[1]

Michigan

The state of Michigan has important mineral resources, notably iron, copper, coal, gypsum, salt, and building-stone. The value of the output in 1912 was $80,062,486.[2] Michigan was admitted to the Union January 26, 1837, before the mineral resources were developed to an important degree and in fact before many of the most valuable deposits were known to exist. The presence of copper in the Upper Peninsula had been noted by explorers but the real discoveries began with the work of the Michigan Geological Survey which was created by an act of the legislature approved February 23, 1837.

Coal mining did not begin until 1835. Copper mining was begun on Keewenaw Point by Boston capitalists in 1842. A party of United States surveyors discovered iron ore near Teal Lake in 1844. Thus it was that shortly after Michigan became a state the problem of the taxation of the new mines and mineral resources required attention.

The first legislation providing for the taxation of mines was the Act of April 25, 1846. This prescribed a specific tax

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1 The Louisiana Supreme Court in the case of J.M.Guffey & Co., of Pittsburg, v. J.L.Murrell, tax collector, of Crowley, La., decided that oil companies are not exempt from taxation under the act exempting capital, machinery and other property employed in mining operations for a period of ten years. The court declares: "Mining operations have to do with workings of a mine and neither in the ordinary nor in the scientific acceptance of the term 'mine' is the term 'oil well' included. Laws granting exemption from taxation must be strictly construed and so the operation of an oil

of four percent in lieu of all other state taxes to be levied upon all ores and the product of all mines, which tax was to be assessed upon the average yield of the ores after being smelted, if smelted in the state; but if the ores were to be shipped out of the state before being smelted, the taxes were to be paid before the ores were removed from the premises where they were mined. This act also provided further that the tax on the product of the iron mines should not exceed two percent.[1]

By an act approved April 8, 1851, an annual tax of one percent was levied on the whole amount of paid-in capital. Companies paying this tax were relieved of all state taxes on real and personal property.[2]

The first tonnage tax law was enacted February 5, 1853, It provided that the following taxes be collected: one dollar for each ton of copper or mineral obtained, ten cents for each ton of iron ore, one-half cent for each ton of coal. These taxes were to be the only state taxes on these objects.[3]

In 1855, the legislature definitely relieved domestic mining companies of the payment of taxes on capital stock provided they paid the tonnage taxes as prescribed by the law of 1853.[4] Township supervisors were instructed by an act in 1861 to assess the real and personal property of all mining companies

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well can not be held to be within the exemption granted to those engaged in mining operations." The decision was a heavy blow to oil interests in Louisiana as they had hoped to get exemption from taxation. Eng. and Min. Jour., 1910, XC., 1091.

2 U.S. Mineral resources, 1912, p 57.

1 Laws of Michigan, 1846, Art. 148, Sec. 14.

2 Laws of Michigan, 1851.

3 Laws of Michigan, 1853, Act 41, Sec. 20.

4 Laws of Michigan, 1855.

not actually operating. This act provided also that all mining companies should be taxed on all land owned in excess of six hundred acres.[1]

The rates of the tonnage tax were changed by the legislature in 1865,[2] in 1867, in 1871, and in 1872. By this last revision the rates became seventy-five cents a ton on copper smelted in the state and one dollar if smelted outside, one cent on iron ore, and one-half cent a ton on coal.[3]

In 1873 the mining companies were required to furnish the assessor with a statement of the weight of copper produced and all copper was assessed at its cash value, as other personal property, for county and township purposes.[4]

In 1875 the Michigan Supreme Court declared unconstitutional the law imposing a specific tax discriminating between ore smelted in the state and that shipped outside to be smelted, as being in restraint of interstate commerce.[5]

The State Legislature in 1885 suspended for five years the specific tax so far as the same applied to "gold, silver, and lead and the ores of said minerals".[6] The tonnage tax was repealed in 1891 and thereafter all the property used in the business of mining, smelting, or refining was taxed for state and other purposes under the general provisions of the law relating to the assessment and taxation of property.

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1 Laws of Michigan, 1861.
2 Laws of Michigan, 1865.
3 Laws of Michigan, 1872, Act of March 29.
4 Laws of 1873, Act approved April 10.
5 32 Michigan 488.
6 Act of May 29, 1885.
7 Act of June 16, 1891.

The legislature of 1911 provided specifically for the assessing and taxing of mineral rights severed from the ownership of the surface. Such mineral rights are taxable as an interest in real property at the same rate and subject to all provisions of the law relating to the assessment and taxation of real property.[1]

The same legislature on April 25, 1911, directed the Board of State Tax Commissioners "to investigate, examine into, inventory and appraise all mining property in the State of Michigan and all mineral rights" and to report the result of the appraisal to the State Board of Equalization on or before the third Monday of August, 1911. An appropriation of thirty thousand dollars was made to cover the expense of this appraisal.[2]

J.R. Finlay, an eminent mining engineer, was selected May 24, 1911, to appraise the mines of the state and on August 18 he filed his report. This was the first attempted appraisal for taxation of all the mines of a state by a staff of engineers not identified with an institution of the state. The appraisers could not undertake a detailed examination of all the mines, but the work done was remarkable in its extent considering the length of time allotted to the appraisal. The report filed covers the copper, iron, and coal mines but the appraisers decided that the Michigan salt, gypsum, cement, brick-clay, marl, and limestone operations should not be classed as mines. They also did not attempt to place a value upon undeveloped mineral lands.

The Board of Tax Commissioners in its report of December 14, 1912, suggested to the Governor that the State Geological

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[1] Act of April 7, 1911.
[2] Act of April 25, 1911.

Survey cooperate and furnish data on the value of the mineral lands of the state. There is now cooperation between the Geological Survey and the Tax Commission, the State Geologist acting in the capacity of appraiser of mines.[1] Trained assistants have been employed for this work, the necessary funds to carry on the work having been provided by an act of the legislature.

Minnesota

Shortly after Minnesota was organized as a territory in 1849, iron ore was reported near Gunflint Lake.[2] When the state was admitted to the Union in 1858 none of the important ranges had been discovered. Iron ore was discovered on the Vermilion Range in 1865,[3] but the first shipments were not made until 1884. Mesabi Range shipments were made in 1892, two years after the boom on that range began.

In 1881 the legislature enacted a law[4] providing that mining companies might pay annually in lieu of all other taxes, "on each ton of copper fifty cents, on each ton of iron ore mined and shipped or disposed of one cent for each ton, one-half of such payments to be credited to the General Fund of the state and the other half credited to the county or counties in which such mines" were located. This law was in effect until March 9, 1897, when it was repealed by the legislature. On May 19, 1896, the tonnage law had been declared unconstitutional. A constitutional amendment was adopted permitting the taxation of mines on quantity of

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1 Allen, R.C. Methods of appraisal for taxation. Mining and Engineering World, 1914, XLVI., 463.

2 van Barneveld, C. E. Iron mining in Minnesota, p 9.

3 Ibid., p 9.

4 Gen. Laws, Extra Session, 1881; Chap. 54, Sec. 1.

production or in such other manner as the legislature might determine. During the year following the repeal of the tonnage tax, mines were taxed as other property.

In 1902, the Minnesota Tax Commission advised[1] that the unanimous opinion of the Commission was that a "tonnage tax is the only appropriate means for the taxation of the output of mines". The tonnage tax recommended by this commission was to be graduated with regard to the value and the grade of ores.

The assessors working under the general property tax were unable to value the mines and secure justice between mines and between mines and other property. Great dissatisfaction resulted until 1907, when the Tax Commission was created and the problem of valuing the iron-mines was referred to the commission. The commission made as careful a study as was possible in the time available and adopted a basis for valuation which has been used in later appraisals.[2]

No important changes in the law have been made as it affects mines since the Tax Commission was created by the law of 1913, which specifies that mines shall be assessed at fifty cents on the dollar.[3]

In 1906 the state received in taxes from the iron mines $179,272; in 1914, the state taxes paid by the iron mines amounted to $1,314,538. At a 4-mill state tax rate and on a conservative ore exhaustion period there would be approximately a total of future tax revenue of $28,000,000. It is evident that the Tax

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1 Report of Min. Tax Commission, 1902, p 43.

2 Hurd, R. Iron ore manual, p 20. McVey, F. L. Taxation of mineral properties, Proc. Nat. Tax. Assn., 1908, II., 411. Minn. Tax Commission Reports. See also Chap. VII., p 209

3 Laws of 1913, Chap. 483.

Commission has been instrumental in discovering a source of state revenues and in levying increased taxes upon the iron mines.

Montana

The mineral resources of Montana are of great importance and the revenue which the state derives from the mines in the form of taxes has proven of great assistance in conducting the affairs of the state.

As early as 1804, the Lewis and Clarke expedition noted coal along the Missouri River, but the first mining was for gold at Bannack in 1862. Placer gold mining was at its height in 1867, three years after the territory was organized. Silver mining followed the discovery of lodes in 1864, was at its height in 1887, and continued until 1892. Copper mining became of importance after the discovery of copper ore in the Anaconda shaft in 1882.

Taxation of mines received attention at an early date. By the law of 1872 both the proceeds and the capital stock of companies were subject to taxation.[1]

The present practice of taxing the net proceeds of mines was practically started in 1879.[2]

Deductions from the gross receipts may be made for the cost of extracting the ore from the mine, reducing it, and converting it into bullion. The Constitution provides that all mining claims assessed[3] at the price paid the United States for the land, all machinery and improvements having a value separate from

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[1] Statutes, 1872. Hope Mining Co. v. Kennon, 3 Mont. 35. (1877)
[2] Rev. Stat. 1879, Chap. LIII., Art. II., Sec. 1047-1051.
[3] Const. Art. XII., Sec. 3.

the mines or mining claim, and the net proceeds of all mines and mining claims shall be taxed as provided by law.

The statutes provide that mines shall pay a tax on net proceeds and on improvements.[1]

This law has been interpreted by the courts as applicable to coal mines.[2]

The right to minerals has been held to be taxable both when the claims are not patented and when the right to the minerals is severed from the surface and reserved upon the sale of the surface.[3]

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[1] Rev. Statutes, Sec. 2563-2571.

[2] Mont. Coal and Coke Co. v. Livingston, 52 p 780. (1898)

[3] North. Pacific v. Mjelde, 137 Pac. 386 (1913)

Miscellaneous notes on Montana taxation: Min. & Eng. World, XXXVIII, 72; XXXIX, 583. Eng. & Min. Jour., XCVI., 607, 663.

Nevada

In 1849 gold was discovered in Gold Canon and in 1859 the Comstock lode was opened. On March 2, 1861, the territory of Nevada was organized. The taxation of mines at once received attention and in 1861 a law was enacted,[1] which exempted mining claims, except machinery and improvements. In 1862 the proceeds of mines were taxed.[2] At the first[3] session of the legislature a tax of 100 cents on the $100 valuation was levied upon the net proceeds of mines.[4] All of the ores were assessed as follows: From the gross return per ton of ore was deducted twenty dollars per ton and seventy-five percent of the remainder was taxed.[5] If the value of the ore was not established, they were to be assessed at five hundred dollars per ton. Ores valued at less than twenty dollars were not assessed. In 1867 the law was amended[6] in order to make allowance for the refractoriness of ores. A deduction of eighteen dollars per ton was to be allowed for treatment of ordinary ores but when the ore was worked by the Freiberg or roasting process or by any smelting process a deduction of forty dollars per ton was permitted. The tax rate was $1.25 per $100 valuation.

Additional changes were made by the legislature in 1871.[7] The net proceeds were determined by deducting from the gross the actual cost of mining, melting, transporting, and smelting. When the value of the ore was less than $12, the deduction was not to

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1 Act of Nov. 29, 1861.
2 Laws, 1862, p 131.
3 Nevada was admitted to the Union Oct. 31, 1864.
4 Laws of Nevada, 1864-65, Chap. LXXXV., Sec. 99. See also Chap. III., p 46
5 In State v. Estabrook (1 Nevada 156) it was held that the part of the law which directed that the tax be levied on three-fourths of the value instead of the full value.
6 State of Nevada, 1867, Spec. Sess., Chap. III., Sec. 3.
7 State of Nevada, 1871, Chap. XXXV.

exceed 90 percent of the gross value of the ore; not over 80 percent deduction was permitted on ore valued at $12 to $30; not over 60 percent on ore valued at $30 to $100; not over 50 percent on ore valued at more than $100. An additional deduction of $15 was permitted for ores treated by the Freiberg process.

By the law of 1891[1] the net proceeds were assessed and taxed at the same rate ad valorem as other property is taxed. The county assessors were authorized by the legislature of 1901,[2] to meet annually in order to value uniformly the property of the state. The assessors thus practically formed a state board of appraisers.

The office of State License and Bullion Tax Agent was created in 1905, and the duty of enforcing the law providing for the taxation of the net proceeds of mines was placed upon him.[3] The Constitution as amended in 1906 provides that patented claims shall be assessed at not less than five hundred dollars, except when one hundred dollars in labor has been actually performed on such patented mine during the year, in addition to the tax upon the net proceeds.[4]

It was the general opinion that the mining companies were evading the law. The Bullion Tax Agent pointed out[5] various defects in the law, notably the irregularities which resulted from permitting the mining companies to make deductions for the cost of milling. Separate milling companies were organized and the profit was made through the milling company which was taxed upon plant and not upon proceeds. Recommendation was made by the Bullion Tax

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1 Statutes, 1891, p 162.
2 Laws, 1901, p 61.
3 Laws of 1905, p 226.
4 Const., Art. X., Sec. 1.
5 An. Report of State Bullion Tax Agent, 1912, p 8.

Agent that the administration of the tax upon net proceeds be placed under a state tax commission. In 1912, a committee of citizens was appointed to investigate taxation in Nevada and to make recommendations. The report of this committee included several recommendations,[1] notably, that a permanent tax commission be created and that the constitution be amended to permit a graduated tax upon the gross output of mines instead of the tax on the net proceeds now in force.

As a result of the work of this committee the Nevada Tax Commission was created[2] and the office of Bullion Tax Agent abolished. This Commission is charged with the duty of determining the net proceeds of mines and is given the power to decide what charges are "just, proper and reasonable, and not introduced to deprive or defraud the State".[3] The Commission found that most of the mining companies were maintaining secondary milling and transportation companies which were defeating the bullion tax. The Nevada Mine Operators' Association suggested a conference between its executive committee and the Tax Commission[4] and at this conference an effort was made to suggest means of correcting abuses and of providing for the equalization of the tax burden. "It was proposed by the mine operators that for 1913 the mines would abolish their milling and transportation subdivisions, and report the actual 'net proceeds' from all their operations, but that a flat charge of $3 per ton should be allowed in addition to the legal deduction from the value of the gross yields in figuring the net, this flat

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1 Report of the Nevada Citizens Economy and Taxation Committee, 1913, p 99.
2 Laws, 1913, Chap. 134, Sec. 9.
3 Tax Commission Act, Sec. 9.
4 Nevada Tax Com. Report, 1913-1914, p 18.

charge to reduce to $2 in 1914, and to $1 in 1915 and thereafter".

This proposal was rejected by the Tax Commission for the reason that many mining companies in Nevada were not making $3, $2, or even $1 per ton and would by the operation of any flat-rate exemption be relieved from the payment of any taxes at all. The operators also requested permission to make a charge for depreciation of their plants. The Tax Commission carefully considered the entire matter and made a definite proposal to the operators at a conference on September 9, 1913, which proposal was formally accepted by the operators.

The proposed rule[1] for the assessment of mines in 1913 follows:

AGREEMENT

The Nevada Tax Commission proposes the following procedure for general adoption throughout the State, in assessing the mining industry for taxation during and covering the entire year 1913:

Improvements

To be assessed as other property is assessed in the county in which it is situated.

Assessment of the Net Proceeds of Mines

The net proceeds of any mine shall be determined as follows:

From the actual value of the gross yield (in any quarter) shall be deducted the sum of the following items of expense:

(1) <u>Management</u>

All necessary current administrative expenses, excepting:

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[1] Report, Nevada Tax Com. 1913-1914, p 18.

(a) Federal, state, or county taxes.

(b) Payments of interest on bonds or other indebtedness.

(c) Expenses of maintaining offices other than the mine office.

(2) Cost of Extracting

(a) All necessary current mining expense (not including apportionment of general administrative expense) including expense of contemporaneous development and exploration of the mine itself.

(b) A depreciation charge which shall be equivalent to quarter-annual installment of the amount calculated to be written off annually to redeem 80 percent of the original and all subsequent investments in mine plant or improvements (not including repair and maintenance charges against operation account), within the entire estimated life of the plant, including the time during which it has been used plus its estimated residual life which may equal but not exceed the estimated life of the mine. Such depreciation or redemption charges shall cease when 80 percent of any investment in improvements shall have been charged off in the manner provided in the foregoing.

(3) Cost of Transportation

Where the transportation facilities used in conveying the mine products from the mine to the place of reduction or sale are owned directly or indirectly by the company:

(a) The actual expense of operating such plant facilities, exclusive of general or administrative expense.

(b) A depreciation charge calculated in each case to redeem 80 percent of the original investment in transportation facilities, in the same manner as mine-plant depreciation is figured.

Where the said mine products are transported by common carrier or by facilities not owned by the company and from which it derives no revenue:

(a) The actual amount paid for the carriage of the said mine products with no allowance for depreciation.

(4) <u>Cost of Reduction or Sale</u>

Where the reduction works in which the mine products are treated are owned directly or indirectly by the company:

(a) The actual expense of reduction or treatment or sale of product, exclusive of general or administrative expense.

(b) A depreciation charge calculated in each case to redeem 80 percent of the investment in reduction works in the same manner as mine-plant depreciation is figured.

Where the mine products are treated in plants not owned by the company and from the operation of which it derives no revenue:

(a) The actual amount paid for the treatment or reduction of the ores, and marketing of the product, with no allowance for depreciation.

The sums of items (1), (2), and (4) shall constitute the offset deduction from the gross yield for the determination of the actual net yield, and the remainder shall be the actual net yield for the purpose of taxation and to assess the mining industry on the same percentage of actual value as that at which other property is assessed, which is determined for 1913 as 60 percent of the actual cash value as an average for the State. A further deduction from the value of the gross yield equivalent to 40 percent of the actual net yield, as hereinbefore defined, shall be allowed and this shall be charged to management, extraction, transportation, reduction and sale, in equal proportions to each of the four said items.

The acceptance of this proposal by the Nevada Tax Commission as its rule of action, in fixing the assessment of the net yield of all mines of the State, shall be absolutely contingent on the entire abolition of the so-called secondary milling and transportation companies, as far as the statements and accounts rendered the said Commission are concerned.

The actual earnings of Nevada gold and silver mines in 1913 were much less than in 1912, but the taxes levied upon the net proceeds of mines amounted to $56,574.94 in 1912, and to $182,076.37 in 1913. This increase was due primarily to the elimination of the subsidiary milling and transportation companies.

In determining the valuation of the net proceeds for 1914, the Tax Commission made a proposal to the mine operators that they should take their choice of two alternative propositions: (1) the assessment of 80 percent of the net proceeds determined as in 1913, or (2) the assessment of 60 percent of the net without depreciation.

As the Attorney-General decided that depreciation was not authorized by the statute, the mine operators accepted the appraisal at 60 percent without depreciation.

The Tax Commission adopted the following rule[1] for the assessment of mines in 1914:

The net proceeds of any mine shall be determined as follows:

From the actual value of the gross yield in any quarter-year shall be deducted the following items of expense incurred in the same quarter:

(1) Management

All ordinary and necessary administrative expense, excepting:

(a) Payments on principal or interest on bonds or other indebtedness.

(b) The expense of maintaining offices outside of the State of Nevada.

(2) Mining

All ordinary and necessary expenditures actually made for mining (exclusive of general or administrative expenses) including the cost of contemporaneous development and exploration of the mine itself.

(3) Transportation

(a) Where the transportation facilities used in conveying the mine products from the mine to the place of reduction or sale are owned or controlled directly or indirectly by the

[1] Ibid., p 21

mining company: The actual expense of reduction or treatment or sale of the said products.

The actual necessary expenditures for the maintenace and repair of mine, transportation and milling or reduction plants may be included in the foregoing deductions, but no charge whatever for depreciation or the redemption of any investment in mine ground, development done prior to the quarter for which the report is made, or plant construction shall be allowed.

The sums of items (1), (2), (3), and (4) shall constitute the offset deductions against the value of the gross yield, and the difference in each case between the said gross yield and the said sum shall be deemed the net proceeds for the purpose of taxation.

To equalize the mine assessment with that of other property, 60 percent of the net proceeds determined as provided in the foregoing shall be assessed - this rule applying to all mines from which the ore is extracted directly by the owners. In the case of producing "leases" the lessee shall be entitled to deduct, in addition to the items enumerated, the royalties actually paid to the lessor, but royalties received by any lessor shall be reported separate from other receipts and 60 percent thereof shall be assessed with no deduction whatever.

New Mexico

While New Mexico has never ranked as one of the leading mining states, the mineral wealth of the state is relatively of great importance when compared with the other resources. As early as 1770 Santa Rita was a flourishing gold district.[1]

The Territory of New Mexico was organized December 13, 1850, and on January 18, 1865, the Territory enacted laws regulating the location of mining claims. During the succeeding years mining continued to attract attention although few important mines or districts were developed. In later years the coal and low-grade copper deposits have received much attention. The value of the mineral output was $14,391,355 in 1912 and $17,862,369 in 1913.[2]

Under the Territorial Government all property was taxed upon an ad valorem basis until 1891 when a law was enacted authorizing a tax upon the net product of mines. The Constitution, adopted and ratified January 21, 1911, provides[3] that the legislature shall have power to provide for the levy of specific taxes, including "taxes upon the production and output of mines, oil lands and forests; but no double taxation shall be permitted".

In 1891 the legislature had provided for the taxation of mines and mining claims upon "the net product and upon surface improvements only".[4] The same legislature provided for the exemption of mining claims, but not the net product and surface improvements thereof, for a period of ten years after location.[5]

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1 Bull. 285, U. S. Geol. Survey.
2 Mineral resources of the U.S., U.S.Geol. Survey, 1913, p lxxviii.
3 Art. VIII., Sec. 2.
4 Laws of 1891, Chap. 77.
5 Laws of 1913, Chap. 84, Sec. 2.

In 1913 the legislature specified that property should be listed for taxation at one-third of its cost value. There has recently been considerable complaint on the part of the mining companies that they have been overtaxed.[1]

Ohio

The value of the mineral output of Ohio increased from $111,229,656 in 1912 to $121,690,661 in 1913.[2] The most important minerals produced are coal, natural gas, and petroleum.

The property tax has been used in Ohio since 1825[3] and the tax law essentially in its present form was enacted in 1846. Property is assessed locally and taxed for state and local purposes. In assessing property its value for mining purposes is considered. As minerals are mined proper deductions from the assessed value are made. Mineral rights are assessed separately when they are owned separately.[4]

The assessment of real property is made quadrennially[5] and of personal property annually. The assessor when appraising personal property makes a list of all new mines, wells, etc., begun or constructed since the last preceding quadrennial appraisement.[6]

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1 The Chino Copper Co. protested to the State Board of Equalization against assessing the mine in 1913 on $1,000,000 worth of "net product" as well as mineral land, claiming that this was double taxation. The State's right to tax mine products will be tested in the courts.

2 Mineral resources of the United States, 1913, p lxxxix.

3 Bogart, E.L. Financial history of Ohio, Univ. of Ill. Studies in Social Sciences, 1912, I., 181.

4 Apparently this section of the law was ignored by the assessors in 1901 as the assessed value of coal and oil lands in three counties totalled $298,794. The value of the separately owned mineral rights as determined by the Commision in 1911 was $17,925,993. (2d An. Report, Ohio Tax Commission, 1911.)

5 Prior to 1911 the assessing was done by local officers elected decennially. Real estate was valued in 1826, 1835, 1841, 1847, 1854, 1861, 1871, 1881, 1891, 1901, and 1911.

6 Laws of 1911, Sec. 5562.

At an election held September 3, 1912, the constitution was amended so that "laws may be passed providing for imposition of taxes upon the production of coal, oil, gas, and other minerals.[1]

Oklahoma

The state of Oklahoma is an important producer of minerals, principally coal, petroleum, natural gas, and zinc. In 1912 the value of the production was $53,614,130 and in 1913, $80,160,820.[2]

The policy in Oklahoma has been to levy state taxes upon gross product and also a property tax for state, country, and local purposes upon all improvements. The Constitution[3] authorizes the legislature to levy gross revenue, income, production, or other specific taxes. In valuing non-producing mineral lands, the assessor is required to consider and appraise minerals and mineral rights.[4] In addition to the ad valorem tax on property, producers of minerals of all kinds pay an output tax of one-half of one percent of the gross receipts after deductions are made for royalties paid to Indian land-owners, if the property is leased from an Indian or a tribe.[5] The rate was formerly (1907) two percent but after two years' experience with the output tax, the legislature reduced the rate to one-half of one percent. These taxes are levied and assessed by the State Auditor.

The graduated land tax has a tendency to restrict the quantity of mineral land controlled by mining interests.[6]

1 Const. Art. XII., Sec. 10.
2 Mineral resources of U.S., 1913, U.S. Geol. Survey, p xci.
3 Article X., Sec. 12.
4 Rev. Stat., 1910, Chap. 72, Sec. 7304.
5 Ibid., Sec. 7464.
6 Ibid., Sec. 7524.

Pennsylvania

The value of the mineral output of Pennsylvania greatly exceeds that of any other state, in 1912 the value being $445,799,653 and in 1913, $506,466,759.[1] The most important products are coal, petroleum, and natural gas.

In 1844 Pennsylvania enacted laws regulating assessment of property, and these have continued to be the principal features of the laws which have controlled the valuation of mines and mineral lands. In 1857 it was held that coal and land could be assessed separately. The legislature enacted a law, August 25, 1864, levying a tax on the product of mines, quarries, and clay-beds at the rate of two cents per ton. This was practically a tax on freight,[2] and was declared unconstitutional in 1872. The courts held that mined coal is personal property when in the mine as well as when stored on the surface.[3]

The mines of the state are taxed locally upon real and personal property. An annual state tax is levied upon the capital stock of corporations, and upon corporate loans. The principal problem in the taxation of mines in Pennsylvania has been that of valuation.[4]

In 1909 the Pennsylvania legislature appointed a Joint Committee to make a report upon taxation of mines. This committee drafted a bill favoring the taxing of anthracite at the mine, but no action was taken until 1913 when an act was passed providing that anthracite should be taxed two and one-half percent of the

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1 Mineral resources of the U.S., 1913, p xcvii.
2 Reading R. Co. v State of Pa. 15 Wall 232 (1872).
3 Lykens Valley Coal Co. v. Dock, 62 Pa. 232 (1869).
4 See Chap. VII., p

gross value per ton at the mine when ready for market.[1] The constitutionality of this act has been assailed in the courts.

South Carolina

South Carolina has never ranked as an important producer of minerals. Prior to 1912, phosphate mining was relatively of considerable importance, but recently the industry declined. In 1912, the value of the total mineral product was $1,606,989 while in 1913 it was $1,464,150.[2]

The Constitution of 1868 provided for uniform taxation except on mines, the proceeds only of which were to be taxed.[3] The Constitution of 1895 made a similar limitation upon the taxation of mines.[4]

Personal property used in connection with mines and all land not actually mined is assessed and taxed as other personal property and real estate. Land actually mined is not taxed except upon the gross proceeds which are determined by the cash market value of the material mined.[5]

Utah

The Mormans entered Utah in 1847, but paid no attention to mining in the early days, although it is claimed that they soon realized the great mineral wealth of the area surrounding the fertile valleys in which they had located.[6]

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1 Pa. Laws, 1913, Act. 374.
2 Mineral resources of U.S., 1913 p c.
3 Const. of 1868, Art. IX., Sec. 1.
4 Const. of 1895, Art. X., Sec. 1.
5 Acts of Gen. Assembly, 1881-1882, Sec. 196.
6 U.S. Geol. Survey, Prof. Paper 77, p 16.
Bancroft, History of Utah, p 741.

Utah was organized as a territory December 9, 1850. The so-called "Utah War" of 1857 brought into the district a considerable number of United States troops. Later, in 1862, a detachment of California volunteers was located at Salt Lake and these soldiers, who were experienced in California mining, began prospecting in the mountains near by. The first mineral discovery was reported in Bingham Canyon in 1863. Other discoveries were soon made and mining became of great importance. In 1872 Utah enacted laws controlling locations upon mineral lands. Taxation laws were adopted in 1878.

The Constitution was adopted November 5, 1895, and Utah was admitted to the Union, January 4, 1896. The taxation of the net proceeds of mines is authorized by the Constitution.[1] In 1899 the assessment of the net proceeds was transferred to the State Board of Equalization by action of the state legislature. In 1905 when the question was carried to the State Supreme Court, it was held that, under the Constitution of the State, the State Board could not legally assess the net proceeds of mines. In 1908 the Constitution was amended and specified that "the net annual proceeds of all mines and mining claims" shall be taxed by the State Board.[2]

An effort was made in 1911 to revise the system of taxation in general and various constitutional amendments were proposed including one removing the provision requiring the State Board of Equalization to tax mining machinery, surface improvements, and net proceeds of mines and removing the restriction that claims and land shall be taxed at the price paid the United States for the land.

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[1] Art. XIII., Sec. 4.
[2] Art. XIII., Sec. 4.

All of these amendments were defeated.[1]

The details of the law now in effect in Utah are given in Chapter IV. The State Board of Equalization recommended in 1912 that the law taxing the net proceeds of mines be made more specific and that taxes and insurance be legally deductable from the net proceeds. The Attorney-General also pointed out defects in the law and urged that the proposed amendment be resubmitted.[2]

According to the report of the State Board of Equalization the important points of difference between the mining companies and the State Board of Equalization have been adjusted and the lawsuits which resulted from controversies[3] over the interpretation of the law have determined judicially the various points at issue. "So long as the law makers of the State shall consider that the assessment of the net proceeds of a mine fairly represents its value for assessment purposes, a fair and uniform assessment may be had under the present law.[4]

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1 It was claimed that the State Board could not make personal inspection of mining property as frequently as the county assessor could.

2 Report of Attorney-General, 1911-12, p 9.

3 In a suit by the Utah Copper Co. to recover an excess of taxes levied by the Board of Equalization and collected by the county treasurer, the Judge in the U.S. District Court instructed the jury to find for the mining company, the amount decreed to be returned, amounting to $29,444. The point at issue was the allowance of expenditures in the development of mining properties and the providing of facilities for the handling and reducing of the ores. The company held that these expenditures were properly to be deducted from the gross revenue, before the net profits could be established. Eng. and Min. Jour., 1913, XCV., 1119.

4 Report State Board of Equalization, 1913-1914, p 60.

Miscellaneous articles and notes on Utah mine taxation:

Thomas, J.J. Taxation of mines in Utah and Nevada. Proc. Nat. Tax Assn., 1908, II., 431.

Bennion, H. Administrative problems, work of state commissions and state tax commissions in Utah. Proc. Nat. Tax. Assn., 1914, VIII., 111.

Paterson, O.S. Report of special tax commission of Utah. Proc. Nat. Tax Assn, 1912, VI., 425.

Unsigned articles and notes:

Eng. and Min. Jour., LXXXV., 229,623; XCV., 492, 119; XCVI., 1044.

Virginia

Virginia does not rank high as a producer of minerals, the value of the output having been $14,995, 842 in 1912 and $17,178,580 in 1913.[1]

The general property tax has been employed in the taxation of mines and the assessing of mines and mineral lands under special rules is authorized by the Constitution.[2] The legislature by an Act amended in 1910 has prescribed how the appraisal shall be made.[3] The assessment was formerly made every five years by the general assessors; now an annual appraisal is made by the commissioner of revenues in the district where the property is located, with the assistance of a special assessor appointed by the Corporation Commission.[4] As a result a higher valuation of mineral land has resulted. In 1906, the 956,155 acres of mineral land then assessed bore an acreage assessment of $8.13 per acre; in 1911, the acreage was 2,438,887 which was rated at $11.51 per acre. This was an increase of 42 percent which may be compared with an increase in valuation of 28 percent for farm lands.[5]

The experience of Virginia may well be expressed by the statement of the Joint Committee on Tax Revision reporting to the Governor of Virginia, November 1, 1914, in accordance with instruc-

1 Mineral resources of U.S., 1913, p cxvi.
2 Const. of 1902, Art. XIII., Sec. 172.
3 Code of Va., Sec. 437a.
4 Laws of 1912, p 162.
5 Joint Committee on Tax Revision, Va., 1914, p 29.

tions of the legislature of 1914, as follows:

"Under our general property tax system, the mineral when produced pays on an assessment greater than its value and the undeveloped land out of all proportion to its productive value. Any other system should obviously take no more tax from the mineral, and would necessarily give up all or nearly all the tax upon undeveloped land. Nevertheless, the counties and even the Commonwealth can not forego some assessment against these lands".[1]

West Virginia

West Virginia is an important producer of minerals, ranking second among the states in the value of the mineral output. The principal mineral products are coal, petroleum and natural gas. In 1912 the output was valued at $123,847,812 and in 1913 at $143,640,633.[2]

The Constitution provides that "taxation shall be equal and uniform throughout the state, and all property, both real and personal shall be taxed in proportion to its value".[3]

The essential features of the laws now in force are that real property is assessed locally at its actual value; personal property, including machinery and stored minerals, is assessed at its actual value; leaseholds, in coal, oil, gas, or other mineral substances are assessed at their actual value; mineral rights when owned separate from the surface are assessed at actual value to their owner. When land increases or diminishes as much as $100 on account of the development or exhaustion of minerals, a correspond-

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1 Report of Joint Committee, p 30.
2 Mineral resources of U.S., 1913, p cxxii.
3 Art. X., Sec. 1.

ing change is made in the assessed valuation.[1]

The Tax Commission of 1902, appointed to investigate the tax system of the State, reported to the legislature recommending that a production tax be levied amounting to one-third of a cent per ton on each ton of coal manufactured or produced, the proceeds of this tax to be used for State purposes alone.[2]

The attempts made during the session of the legislature in 1903 to enact such a tax on production failed. Again in 1907 the State Tax Commissioner recommended[3] to the legislature that a production tax be employed by the State. No action was taken. The reasons assigned by the Tax Commission[4] for the imposition of the production tax were as follows:

"FIRST: The nature of this business is such, that the State has felt called upon to incur a very considerable annual expense, in order that the business may be carried on with profit to the operators, and with comparative safety to the miners. To this end a law has been passed in the interest of this business. Mine inspectors are appointed, and salaries and expenses are paid by the State.

"SECOND: Three Miners' Hospitals have been established, and buildings erected in mining districts of the State, primarily for the purpose of caring for, and treating persons, principally miners, who may be injured in and about the operations of the mines. The expense of maintaining these hospitals is very considerable every year.

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1 Code of 1906, Sec. 723, 687, 688, 794.
2 Townsend, T.C. Taxation of coal, oil, and gas. Proc. Nat. Tax Assn., 1908, II., 395.
3 Ibid., p 398
4 2d Bien. Report Tax Com., 1907-8, p 32.

"THIRD: The State at very considerable expense maintains its militia or national guard. It may be said that in almost every case where it is found necessary to call out this guard for the preservation of the domestic peace and for the protection of property, it is owing to disturbances in the mining regions of the State, growing out of difficulties or disputes between the operators of the mines and those in their employ.

"FOURTH: Investigation shows that the criminal charges are much larger in counties where large mining operations are carried on, than in other counties. This results, it is believed, from the large influx into such counties of men to work in the mines.

"FIFTH: It will be admitted, that miners and others employed about the mines, pay but little tax, either into the State, or county treasury; and that very often the operators or owners of the mines reside in other states, and pay little or no taxes in this State. The number of children in mining communities is generally large in proportion to the population. For work in the mines, large numbers of laborers, many of them illiterate, are brought in by the operators, and the burden of educating the young is thrown upon the State, and the community. The operators and owners of the mines have a special interest in the education of these young people, and being responsible for their being in the State, it is thought not unjust, partly in consideration of this fact, that the small tax should be paid."

In 1905 the legislature enacted the law taxing leaseholds. This law was held to be constitutional.[1]

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[1] Harvey Coal & Coke Co. v. C.W. Dillon, 59 W. Va. 605.

The Tax Commission of 1902 endeavored to secure legislature providing for a production tax of one-half cent per barrel of oil, but without success. The difficulty of appraising an oil or gas property is apparent and in the opinion of the West Virginia Tax Commission a production tax is the "most feasible, scientific, and common-sense method" that can be devised.[1]

On the contrary Governor Hatfied went on record in a special message to the legislature, February 18, 1915, as not advocating a production tax on coal, oil, and gas.[2]

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[1] Prospective oil and gas is not real estate until brought to the surface. Carter v. Tyler, 32 S. E. 216.

[2] Public, 1915, XVIII., 206.

Miscellaneous references on West Virginia:

Blue, F.O. Notes on mine taxation in West Virginia, Coal Age, 1913, IV., 713.

White, A.B. Taxation of coal, oil, and gas. 2d Bien. Report, W. Va. State Tax Com., 1907-8, p 18.

Editorial, Values assessed without seeing the properties. Coal and Coke Operator, 1913, XXXII., 47.

Wisconsin

Mineral lands and mines of Wisconsin have been subject to taxation only under the general property tax and the income from mines has been taxable as other income under the income tax. The principal problem has been that of valuation and appraisal for the purpose of taxation.

Lead ore was discovered in Wisconsin as early as 1682,[1]

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[1] Irving, R.D. Mineral resources of Wis., Trans. Amer. Inst. Min. Eng., 1879, VIII., 498, See also Wis. Hist. Coll. XIII., 271-293; Trans. Wis. Acad. Arts, Science and Letters, XIII., 188; Geol. Survey (Hall) I., 73 (1862); Schoolcraft, H.R. Narrative Journal of Travels, Albany, (1821).

but lead mining did not begin actively on a substantial basis until Congress authorized[1] the sale of the lead lands of the Mississippi Valley in 1847. Iron ore was discovered in the Menominee Range in 1873, on the Gogebic Range in 1883, and on the Baraboo Range in 1900. Wisconsin was admitted to the Union May 27, 1848 and adopted the system of taxing all property upon the ad valorem basis. Broken minerals were taxed as personal property.[2]

The law in effect now is in no important detail different from the law under which mines have been taxed since the state was organized, but the laws regarding the assessment and valuation have been made more specific.[3] In 1903 a law was enacted providing for the taxation of mineral rights.[4]

In 1897 a State Tax Commission was established[5] and there has been since that date a reorganization and development of the taxing system of the State, with a tendency toward centralization.[6] The first assessment of mines for the Tax Commission was made in 1912. In 1914, this work was regularly authorized by law and it is now done by the State Geologist. The appraiser for the Tax Commission has the right to make a reassessment of any property apparently not fairly appraised. The local taxing units do not always use the valuation of the Geological Survey.

Royalties are taxed under the income tax.[7] At the present time there is no sentiment in Wisconsin in favor of a state tonnage tax. In 1912 the mineral output of Wisconsin was valued at

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1 9 Stat. at Large 179.
2 Palmer v. Corwith, 3 Pinney 267. (1851).
3 See Chap. IV., on laws now in force and Chap. VII., for details on valuation.
4 Laws of Wisconsin, 1903, C 361; 1909, 61. Statutes, 1911, Chap. 48, Sec. 1042j.
5 Laws of 1897, Chap. 340.
6 7th Bien. Report of Wis. Tax Com., 1914, pp 1-9.
7 Laws of 1911, Chap. 658, amended by Laws of 1913, Chap. 27,

$14,192,287 and in 1913 at $12,452,480,[1] practically 25 percent of the value being in zinc. In 1914 the mining corporations paid income tax upon a taxable income amounting to $326,880. The average rate was .05452 and the total tax paid was $17,820.47.[2]

Wyoming

Wyoming has extensive deposits of coal, as well as other mineral resources of value, although the state has never ranked high among the mineral producers. In 1912 the value of the output was $13,374,088 and in 1913 it was $13,682,091, the coal product representing nearly 90 percent of the total.[3]

The Territory of Wyoming was organized July 25, 1868, and the state enacted laws for the location of mining claims December 16, 1870. In 1890 Wyoming was admitted to the Union and adopted a constitution which permitted the taxation of mines upon the gross production in lieu of taxes upon lands. Surface improvements of all mining property are taxed.[4] All coal lands from which coal is not being mined are assessed and taxed according to their value.[5]

The legislature of 1903 provided for the taxation of mines and mineral lands upon the gross product[6] as permitted by the constitution.

In 1909 the office of Commissioner of Taxation was created and the duty of appraising the value of the gross products of mines

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443, 487, 554, 615, and 720.

1 Mineral resources of U.S., 1913, p cxxiv.

2 7th Bien. Rep. Wis. Tax Com., 1914, p 109.

3 Mineral resources of the U.S., 1913, p cxxiv.

4 Const. Art. XV., Sec. 3.

5 Ibid., Sec. 2.

6 Laws of 1903, Chap. 81, Sec. 1 to 6.

was assigned to him.[1] The Report of the Commissioner of Taxation for 1911-1912 shows[2] that the taxes on the output of mines amounted to $38,894.51 in 1910; $53,111.26 in 1911; and $47,734.35 in 1912.[3]

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[1] Laws of 1909, Chap. 66. "The present method of the assessment of output of mines is unsatisfactory, and the law indefinite and conflicting. The present law should be so amended that there can be no question as to what shall be assessed and as to how it shall be assessed and the authority of the assessing board plainly and clearly set forth." First Biennial Report, Commissioner of Taxation, 1909-10, p 19.

[2] p 68.

[3] The value of the output in 1912 as reported by the United States Geological Survey was $13,374,088. The lowest rate applied in any of the mining counties was 7.47; at this rate the tax paid should have been $99,904.44.

CHAPTER IV

Constitutional and Statutory Enactments

Constitutional limitations

An examination of the constitutions of the states shows that no restraint has been placed upon the classification of property for taxation in Connecticut, Maryland, Minnesota, New Jersey, New York, Oklahoma, Pennsylvania, Rhode Island, and Vermont.[1]

Uniformity of taxation on all property in the same class is specified by the constitutions of Arizona, Colorado, Delaware, Idaho, Illinois, Maryland, Missouri, Nebraska, Oklahoma, Pennsylvania, Virginia, and Wyoming.

The following states require uniform taxes on all classes of property: Alabama, Arkansas, California, Florida, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan (except that specific taxes are authorized), Minnesota, Mississippi, Missouri, Montana (except as specified), Nebraska, Nevada (except mines), New Jersey, North Carolina, North Dakota, Ohio, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah (except mines), Washington, West Virginia, Wisconsin, and Wyoming.

The method of taxing mines is prescribed in the constitutions of Montana, Nevada, South Carolina, Utah, and Wyoming.

The legislature of New Mexico is empowered by the constitution to tax the output of mines. The legislatures of Michigan and Oklahoma are authorized by the constitution to levy and collect specific taxes.

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[1] Proc. Nat. Tax Assn., 1911, V., 451.

The constitutions of thirty-two states practically require a uniform method of valuing property for taxation.[1] The constitution of Virginia authorizes special and separate assessment of mineral lands. Unproductive coal land in Wyoming must be listed and taxed as provided in the constitution.

Most of the state constitutions specify that taxes shall be uniform and that all property, except as enumerated, shall be subject to taxation. The constitution of Idaho prescribes that taxes shall be uniform upon the same class of subjects, "provided the legislature may allow such exemptions from time to time as shall seem necessary and just".[2]

Certain of the Eastern states have no constitutional requirement that all property shall be taxed. The statutes of Vermont, in the absence of specific constitutional restriction on exemptions, authorize municipalities to exempt mines from taxation for a period of ten years.[3]

In general, however, the present day tendency is rather to select mines as a special object for heavier taxation than to exempt them.

Specific reference to mines is made in the constitutions of the following states: Montana,[4] Nevada,[5] New Mexico,[6] Ohio,[7] Oklahoma,[8] South Carolina,[9] Utah,[10] Virginia,[11] and Wyoming.[12]

1 Proc..Nat. Tax Assn., 1911, V., 451.
2 Idaho, Const., Art. VII., Sec. 5.
3 Vermont, Pub. Stat., 1906, Sec. 499.
4 Const. of Montana, Art. XII., Sec. 3.
5 Const. of Nevada, Art. X., Sec. 1.
6 Const. of New Mexico, Art. VIII., Sec. 2.
7 Const. of Ohio, Art. XII., Sec. 10.
8 Const. of Oklahoma, Art. X., Sec. 12.
9 Const. of South Carolina, Art. X., Sec. 1.
10 Const. of Utah, Art. XIII., Sec. 4.
11 Const. of Virginia, Art. XIII., Sec. 172.
12 Const. of Wyoming, Art. XV., Sec. 2,3.

From time to time the legislatures of the various states have enacted laws providing for the taxation of mines, which laws have been held by the courts to be in conflict with the Federal or State Constitution. Among the most important of the laws that have been held unconstitutional are the following:

In 1867, the Nevada law tax proceeds of mines was declared unconstitutional.[1]

The Pennsylvania Act of 1864, levying a tax of two cents a ton on the product of mines, quarries, and clay-beds was held unconstitutional in 1872.[2]

Similarly, the tax collected of railroads in Maryland on the tonnage of coal handled was held unconstitutional in 1874.[3]

In 1885, the Michigan Supreme Court declared unconstitutional the law imposing a tax which discriminated between ore smelted in the State and that shipped to smelters outside the state as being in restraint of interstate commerce.[4]

The Minnesota tonnage tax law of 1881 was declared unconstitutional in 1896.[5]

The Utah Act of 1899, placing the assessing of the net proceeds of mines with the State Board of Equalization instead of the county assessor was held to be unconstitutional in 1905.

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1 State v. Estabrook, 3 Nev. 156.

2 Reading R. Co. v. State of Pa., 15 Wall. 232.

3 State v. Cumberland & P. R..CO., 40 Md. 22.

4 Jackson Min. Co. v. Auditor General, 32 Mich., 488.

5 Report of Auditor of State of Minnesota, 1901-1902, p vii.

Statutory provisions

The following state legislatures in providing laws defining property have specified mines and minerals:

Alabama, Arkansas, California, Colorado, Connecticut, Idaho, Illinois, Indiana, Kansas, Minnesota, Montana, Nebraska, New Mexico, New York, North Carolina, North Dakota, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, West Virginia, and Wisconsin.

The following note specifically that mining rights shall be taxed to the owner if the title is separate from the surface: Alabama, Arkansas, Georgia, Illinois, Indiana, Kansas, Kentucky, Michigan, Minnesota, New Hampshire, North Carolina, North Dakota, Ohio, Vermont, Virginia, West Virginia, and Wisconsin.

There is special legislation on the methods of taxing mines in the following states: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Oklahoma, Pennsylvania, South Carolina, Utah, and Wyoming.

Rules for assessing and listing mining property are specified in the laws of Arizona, Colorado, Connecticut, Idaho, Michigan, Minnesota, Montana, Nevada, New Mexico, North Dakota, Ohio, Oklahoma, South Carolina, Utah, Vermont, Virginia, West Virginia, Wisconsin, and Wyoming.

The conditions under which mining property may be exempt from taxation are given in the laws of Alabama, Maine, New Hampshire, New Mexico, and Vermont.

There are special laws in regard to the taxation of mining corporations in Alabama, Connecticut, Florida, Idaho, Massachusetts, and Texas.

Constitutional and Statutory Provisions by States

No attempt has been made to assemble all the constitutional provisions and statutory enactments that apply to the taxation of mining property as well as to other property, but rather to present those that are of particular importance in the study of taxation of mining property.

ALABAMA

Constitutional Provisions

Uniformity All taxes levied on property shall be assessed in exact proportion to the value of the property. (Art. XI., Sec. 211.)

The property of private corporations, associations, and individuals shall forever be taxed at the same rate. (Art. XI., Sec. 217.)

Franchise tax The legislature shall provide for the payment of a franchise tax by corporations organized under the laws of Alabama, which shall be in proportion to the amount of capital stock. (Art. XIV., Sec. 229.) The legislature shall provide for the payment of a franchise tax by foreign corporations, the tax being based on the actual amount of capital employed in the state. (Art. XIV., Sec. 232.)

Statutory Provisions

Mines assessed Real and personal property estimated at its full cash value by assessor upon information, inspection, or otherwise taking into consideration mines, minerals, quarries, or coal-beds and the amount and character of improvements. (Code of 1907, Chap. 45, Art. V., Sec. 2112.)

<u>Mineral rights assessed</u> Mineral interests when they have been severed from the soil by sale or otherwise, shall be separately assessed. (<u>Ibid.</u>, Sec. 2112.) Every separate or special interest in any land, such as mineral, when such interest is owned by a person other than the owner of the soil, shall be assessed. (<u>Ibid.</u>, Chap. 45, Art. III., Sec. 2082.)

<u>Franchise tax</u> All domestic mining corporations pay annually a privilege tax varying from $10. on paid-up capital stock under $10,000, to $500 on paid-up capital over $1,000,000. (<u>Ibid.</u>, Chap. 45, Art. XVIII., Sec. 2361.) Foreign mining corporations pay a franchise tax on capital employed in the state at the following rate, 25 percent on the first $100, 5 percent on the remainder of the first $1000 and then 1/10 percent on the remainder. (<u>Ibid.</u>, Chap. 45, Art. XX., Sec. 2491.) In addition to the state tax, foreign companies pay a county tax equal to one-half the state tax.

<u>Corporation tax</u> Shares of mining companies are assessed and taxes collected in the county where the company has its home office. The corporation property is assessed against the corporation; the shares are assessed in the name of the shareholder at their actual market value of the real and personal property of the corporation. The corporation pays for the shareholders, respectively, the tax assessed against the shares. (<u>Ibid.</u>, Chap. 45, Art. III., Sec. 2082.)

<u>Exemptions</u> Pig iron remaining in the hands of the manufacturers on the first day of October of any year following immediately that in which it was produced is exempt from taxation. (<u>Ibid.</u>, Chap. 45, Art. III., Sec. 2061.)

ARIZONA

Constitutional Provisions

Uniformity All taxes shall be uniform upon the same class of property. (Const. Art. IX., Sec. 1.)

All property not exempt shall be subject to taxation. (*Ibid.*, Art. IX., Sec. 2.)

Assessing The manner, method, and mode of assessing, equalizing, and levying taxes shall be such as may be prescribed by law. (*Ibid.*, Art. IX., Sec. 11.)

Statutory Provisions

Property All property of every kind shall be subject to taxation but double taxation is not permitted. (Rev. Stat., 1913, Title 49, Chap. IV., Par. 4846.) Real estate includes ownership of, or claim to, or possession of, or right to possession to, any land or patented mine within the State. (*Ibid.*, Par. 4847.) "Personal property" includes any interest or equity in or valid claim to non-patented claims, either lode or placer. (*Ibid.*, Par. 4847.)

Assessment Real estate and improvements shall be assessed separately. (Ibid., Par. 4847.) All taxable property must be assessed at its full cash value. (*Ibid.*, Par. 4849.)

ARKANSAS

Constitutional Provisions

Property All property subject to taxation shall be taxed according to its value. (Const. Art. XVI., Sec. 5.)

Uniform assessment The general assembly shall provide by law for the assessment of property according to its value, so that the assessment shall be equal and uniform throughout the State. (Ibid., Sec. 5.)

Statutory Provisions

Property The term "real property and lands" includes not only the land itself, but also all improvements, and all rights and privileges belonging thereto. (Stat. of Arkansas, 1904, Chap. 137, Sec. 6872.) All property, real and personal, shall be subject to taxation. (Ibid., Sec. 6873.)

CALIFORNIA

Constitutional Provisions

Uniformity All property shall be taxed in proportion to its value, to be ascertained as provided by law, or as hereinafter provided. (Const. of California, Art. XIII., Sec. 1.)

Exemptions Privileges and immunities not to be granted to one class of citizens unless granted upon the same terms to all. (Ibid., Art. I., Sec. 21.) The legislature shall not exempt property from taxation. (Ibid., Art. IV., Sec. 25.) The power of taxation shall never be surrendered or suspended by any grant or contract. (Ibid., Art. XIII., Sec. 6.)

Incomes Incomes may be taxed as prescribed by law. (Ibid., Art. XIII., Sec. 11.)

Statutory Provisions

Uniformity All property, not exempt, is subject to taxation, but nothing in the code shall be construed to require or permit double taxation. (Code of California, Title IX., Chap., Sec. 3607.)

Assessment All taxable property must be assessed at its full cash value. (Ibid., Title IX., Chap. III., Sec. 3627.)

Mining property The term "real estate" includes: All mines, minerals and quarries in and under the land and all rights and privileges appertaining thereto. (Ibid., Title IX., Chap. II., Sec. 3617.)

License tax Every corporation (incorporated and) doing business in the state shall pay an annual license tax of ten dollars. (Ibid., Title IX., Chap. II., Sec. 3617.)

Corporations Shares of stock in corporations are exempt from taxation. All property belonging to corporations shall be taxed as is other property. (Ibid., Title IX., Chap. I., Sec. 3608.) Corporations also pay to the state for state purposes a tax of one percent of the actual cash value of their franchises. (Ibid., Sec. 3638.)

COLORADO

Constitutional Provisions

Uniformity "All taxes shall be uniform upon the same class of subjects within the territorial limits of the authority levying the tax, and shall be levied and collected under general laws, which shall prescribe such regulations as shall secure a just valuation for taxation of all property, real and personal." (Const. of Colorado, Art. X., Sec. 3.)

Exemptions All laws exempting from taxation, property other than hereinbefore mentioned shall be void. (Ibid., Art. X., Sec. 9.)

Statutory Provisions

Assessing property in general All taxable property shall be listed and valued each year, and shall be assessed at its full cash value. (Rev. Statutes, 1908, Sec. 5529.) In assessing property, except as provided, the market value shall be the guide. (*Ibid.*, Sec. 5591.)

Mining property Real estate includes all lands, all mines, minerals and quarries in and under the land, and all rights and privileges appertaining thereto, and improvements. (*Ibid.*, Sec, 5540.) The possessory right to unpatented and non-producing mines is subject to assessment. (Laws, 1913, Chap. 139.) All mines and mining claims bearing "gold, silver, lead, copper, and other precious metals or valuable minerals, and possessory rights therein" are divided into two classes, - producing and non-producing. Those having a gross annual output of less than five thousand dollars are classed as non-producing, all others as producing. (Rev. Stat. 1908, Sec. 5618.) Producing mines of coal, iron, asphaltum and quarries are assessed in the same manner as other property. (Ibid., Sec. 5625.)

Producing mines of precious metals are taxed upon a sum equal to one-half the gross proceeds plus all the net proceeds as defined. (Laws of 1913, Chap. 139.) The net proceeds shall be determined by deducting from the gross value of the ore produced, the actual cost of extracting from the mine, not including the salaries of officers not actively and consecutively engaged; the actual cost of transportation to the place of reduction or sale; and the actual cost of treatment, reduction or sale. (Laws of 1913, Chap. 139.)

The surface improvements of all mines are taxable as is other property. (Rev. Stat., 1908, Sec. 5621.)

Corporations Domestic corporations pay for state purposes a tax of two cents upon each one thousand dollars of authorized capital stock. (Rev. Stat., Sec. 5595.)

Foreign corporations, in addition to other taxes, shall pay a license fee of two cents upon each one thousand dollars capital stock, represented by its property and assets in the State. (Laws of 1911, Chap. 260.)

CONNECTICUT

Constitutional Provisions

Nothing specific on mines.

Statutory Provisions

Uniformity All property not exempted shall be taxed. (Pub. Acts, 1909, Chap. 97, p 1024.)

Mining property Quarries, mines, and ore beds shall be liable to taxation. Whether owned in fee or leased, they shall be set in the list separately at their present true and actual valuations and, if owned by a corporation, the whole stock property and franchise shall be set in the list of the town where such quarry, mine or ore bed is. (Pub. Acts, 1909, Chap. 97, p 1024.)

Corporation license Shares of stock in mining and oil companies may not be sold until a financial statement is filed with the Secretary of State. Fee of twenty-five dollars is required. This applies to both foreign and domestic companies, however, companies operating wholly within the State are exempt. (Pub. Acts, 1911, Chap. 232.)

DELAWARE

Constitutional Provisions

Uniformity All taxes shall be uniform upon the same class of subjects. (Art. VIII., Sec. 1.)

Exemptions The general assembly may by general laws exempt from taxation such property as in the opinion of the general assembly will best promote public welfare. (Ibid., Sec. 1.)

Statutory Provisions

Franchise tax Mining companies pay an annual franchise tax of one-twentieth of one percent on the cost value of real and personal property used in the state. (Laws of 1911, Chap. 13.)

Annual license Mining companies, as other companies, pay five dollars annually as a state license. (Rev. Code, 1893; Chap XI., Vol. XV., of Laws.)

Privilege license Before doing business in the State foreign corporations pay a fee of fifty dollars. (Law of Delaware, Vol. XXII., Chap. 395.)

Property tax There is no state levy on general property. All real property, not exempt, is subject to taxation by the local units.

FLORIDA

Constitutional Provisions

Uniformity The legislature shall provide for a uniform andequal rate of taxation. (Const., Art. IX., Sec. 1.)

<u>Assessment</u> The legislature shall prescribe such regulations as shall secure a just valuation of all property, both real and personal. (Const., Art. IX., Sec. 1.)

Statutory Provisions

<u>Property tax</u> All real and personal property not exempt shall be subject to taxation. (Laws of 1906, Sec. 428.)

<u>Phosphate license</u> Owners and operators of phosphate plants in operation shall pay twenty-five dollars for every plant in operation. (Laws of 1906, Sec. 453.)

GEORGIA

Constitutional Provisions

<u>Uniformity</u> All taxation shall be uniform on the same class of subjects and ad valorem on all property subject to be taxed within the territorial limits of the authority levying the tax. (Const., Art. V., Sec. 2.)

Statutory Provisions

<u>Property tax</u> Taxes are levied on the ad valorem value of property. (Code of Georgia, 1910, Sec. 914.)

<u>Uniformity</u> All taxation shall be uniform upon the same class of subjects and ad valorem on all property subject to be taxed. (<u>Ibid.</u>, Sec. 6553.)

<u>Exemptions</u> All exemptions, other than those enumerated, shall be void. (<u>Ibid.</u>, Sec. 6556.)

All real and personal property, whether owned by individuals or corporations is liable to taxation. (<u>Ibid.</u>, Sec. 1002.)

Mining rights All persons owning any mineral interests less than the fee shall return the same for taxation and pay the same as on other property. (Ibid., Sec. 1008.)

License Each company doing business in the State shall pay ten dollars a year. (Ibid., Sec. 919.) All corporations incorporated under the laws of Georgia shall, in addition to all other taxes now required by law,pay each year an annual license or occupation tax as follows: Capital up to $10,000, the sum of $5; from $10,000 to $25,000, the sum of $10; the rate increases up to $100 on a capitalization in excess of one million dollars. All foreign corporations doing business in the State pay a similar tax. (Ibid., Sec. 950 and 951.)

IDAHO

Constitutional Provisions

Uniformity Taxes shall be uniform upon the same class of subjects within the same jurisdiction, provided the legislature may allow such exemptions from time to time as shall seem necessary and just. Duplicate taxation of property for the same purpose is prohibited. (Const., Art. VII., Sec. 5.)

Corporations The power to tax corporations or corporate property shall never be relinquished or suspended. (Ibid., Sec. 8.)

Statutory Provisions

Property tax Real property includes lands, improvements, fossils, and quarries in and under the land. (Laws of 1913, Chap. 8, Sec. 6.) Personal property includes equities and easements. (Ibid., Chap. 58, Sec. 7.) Mining companies pay locally taxes for state and local purposes on land, improvements, and machinery. (Rev. Code, 1908, Sec. 1863.)

Assessing property Mining claims not patented are exempt from taxation; but machinery, property, and improvements upon or appurtenant to mining claims shall not be exempt. (Sess. Laws of 1912, Chap. VIII.) All mines and mining claims, both placer and rock in place, containing or bearing gold, silver, copper, lead, coal, or other valuable mineral or metal deposits, after purchase thereof from the United States, shall be taxed at the price paid the United States therefor, unless the surface ground, or some part thereof is used for other than mining purposes. That part of the ground used for other purposes shall be taxed at its value for such other purposes. (Code of Idaho, Sec. 1863.) All machinery and improvements on mines and mining claims shall be taxed. (Ibid., Sec. 1863.)

Net profits In addition to property taxes on surface and improvements, all mines, patented and unpatented, pay a tax on net profits. (Ibid., Sec. 1863.) To determine the "net profits", deductions are made from the gross receipts as follows:

The actual expenditure of money and labor in extracting the product from the mine, of transporting it to the mill, concentrator, or reduction works, and the conversion of the same into money or its equivalent, and also the deduction of all moneys expended for necessary labor, machinery and supplies needed and used in the mining operations, for the improvements necessary in and about the mine or claim, for reducing ores, for the construction of the mills and reduction works used and operated in connection with the mine or claim, for transporting the ore, and for extracting the metals and minerals therefrom; but the money invested in the mine, or improvements made during any year, except the year immediately preceding, must not be included. Such expenditures do not include the salaries or any portion thereof, of any person or officer not actually engaged in the working of the mine, or personally superintending the management. (Laws of 1909, Sec. 1864.)

Every person or corporation engaged in mining is required to file with the county assessor an annual statement, under oath, of net profits. (Laws of 1909, Sec. 1865.)

License tax All mining companies not owning productive mines, pay to the State a graduated (from $10 on $5,000 capitalization to $150 for $2,000,000) license tax. (Laws of 1912, Chap. 6.)

ILLINOIS

Constitutional Provisions

Uniformity Every person and corporation shall pay a tax in proportion to the value of property owned. (Const., Art. IX., Sec. 1.)

Franchises The legislature shall have power to tax persons or corporations owning or using franchises and privileges in such manner as it shall from time to time direct by general law, uniform as to the class upon which it operates. (Ibid., Art. IX., Sec. I.)

Exemption Exemption from taxation shall be by general law only. (Ibid., Art. IX., Sec. 3.)

Statutory Provisions

Property tax In valuing any real property in which there is a coal, or other mine or stone or other quarry, the same shall be valued at such a price as such property, including the mine or quarry, would sell at a fair, voluntary sale for cash. (Rev. Stat., Chap. 120, Sec. 4.)

Any mining right or the right to dig for to obtain iron, lead, coal, or other mineral from land, when separated from the title to the surface, shall be taxable separately. (Ibid., Chap. 94, Sec. 6 and 7.)

INDIANA

Constitutional Provisions

Uniformity The General Assembly shall provide for a uniform and equal rate of assessment and taxation of all property, both real and personal, excepting such only as shall be exempt by law. (Const., Art. X., Sec. 193.)

Statutory Provisions

Property tax In valuing any real property on which there is a coal or other mine, or stone or other quarry, the same if the land and the mine or quarry are owned by the same person, shall be valued at its true cash value. If the mine or quarry is owned or leased by a person other than the owner of the land, such mine or quarry and all improvements and leasehold and appurtenances shall be valued separately from the land according to the true cash value. (Rev. Stat., 1908, Sec. 10259.)

Capital stock excess Every mining company must file annually a sworn statement of the amount of its capital stock. In all cases where the market value of the capital stock exceeds the value of the tangible property listed for valuation, then such excess value shall be subject to taxation. (Ibid., Sec. 10233, 10234.)

IOWA

Constitutional Provisions

Uniformity The general assembly shall not grant to any citizen or class of citizens, privileges or immunities, which upon the same term shall not equally belong to all citizens. (Const., Art. I., Sec. 6.)

Corporations The property of all corporations for pecuniary profit shall be subject to taxation the same as that of individuals. (Ibid., Art. VIII., Sec. 2.)

Statutory Provisions

Assessing All property subject to taxation shall be valued at its actual value, and shall be assessed at 25 percent of its actual value. (Code of 1897, Sec. 1305.)

KANSAS

Constitutional Provisions

Uniformity The legislature shall provide for a uniform and equal rate of assessment and taxation. (Const., Art. XI., Par. 202.)

Statutory Provisions

Property tax All property, real and personal, not expressly exempt, shall be subject to taxation. (Gen. Stat., 1909, Sec. 9214.)

Real estate includes not only the land but buildings, improvements, mines, minerals, quarries, mineral springs and wells, and rights and privileges appertaining thereto. (Ibid., Sec. 9215.)

Where the fee to the surface of any tract or lot of land is in any person or persons, natural or artificial, and the right or title to any minerals therein is in another or in others, the rights to such minerals shall be valued and listed separately and the land and said right to the minerals shall be separately taxed to the respective owners. (Ibid., Sec. 9334.) Reserves or leases not recorded in ninety days shall be void. (Ibid., Sec. 9334.)

Assessing The assessor, from actual view, from consultation with the owners or agent thereof and from such other sources of information as are within his reach shall determine the true value of the property in money. (Ibid., Sec. 9322.)

KENTUCKY

Constitutional Provisions

Uniformity Taxes shall be uniform upon all property subject to taxation. (Const., Sec. 171.)

Assessing Property shall be assessed at its fair cash value. (Ibid., Sec. 172.)

Exemptions The power to tax shall not be surrendered by any grant or contract. (Ibid., Sec. 175.)

Statutory Provisions

Property tax All property shall be assessed at its fair cash value. (Code of Kentucky, 1909, Sec. 4020.)

Real estate includes all lands and improvements thereon. (Ibid., Sec. 4022.) Mineral rights or coal, oil, or gas privileges by lease or otherwise, or any interest therein in Kentucky, other than in the county in which the said owners reside, or if they should reside out of the State, shall be listed for taxation personally in the county where situated. (Ibid., Sec. 4039.)

LOUISIANA

Constitutional Provisions

Uniformity Taxation shall be equal and uniform on all property in the same taxing district. (Const., Art. 225.)

Statutory Provisions

Property tax The term "property" includes all real estate, improvements, rights, personal property and shares of stock. (Laws of 1898, Act 170, p 346.) All property shall be valued at actual cash value. (Ibid., p 346.)

MAINE

Constitutional Provisions

Uniformity All taxes upon real and personal estate, shall be apportioned and assessed equally, according to the just value thereof. (Const., Art. IX., Sec. 8.)

Exemptions The legislature shall never in any manner, suspend or surrender the power of taxation. (Ibid., Sec. 9.)

Statutory Provisions

Property tax Real estate includes the land, improvements, and all interests. (Rev. Stat., 1903, Chap. 9, Sec. 3.) Mines of gold, silver or of the baser metals when opened and in process of development are exempt from taxation for ten years from the time of such opening. But this exemption does not affect the taxation of the lands or the surface improvements of the same at the same rate of valuation as similar lands and buildings in the vicinity. (Ibid., Chap. 9, Sec. 6.)

Corporations Mining companies are taxed locally upon their property. Shares of capital stock in such corporations are not taxed to the owners. Bonds and other securities are taxed. (Ibid., Chap. 9, Sec. 25.)

MARYLAND

Constitutional Provisions

Uniformity Every person in the State holding property therein ought to pay his proportion of public taxes according to his actual worth in real or personal property. (Declaration of Rights, Art. 15.)

Statutory Provisions

Property tax All property of every kind shall be assessed for the purpose of taxation. (Code of 1911, Art. 81, Sec. 2.) Property shall be assessed at full cash value. (Ibid., Sec. 4.) Shares shall not be taxed when the property they represent is taxed locally. (Ibid., Sec. 4.)

Corporation tax Domestic corporations are taxed on personal property for state and local purposes, upon the basis of the entire value of the capital stock of the company, a deduction being made for the assessed value of real estate. Capital stock is assessed by the State Tax Commissioner. (Code, 1904, Art. 81.) Personal property of domestic corporations whose shares are subject to taxation under the capital-stock tax is exempt from further taxation.

Foreign mining corporations pay in addition a license tax graduated according to the amount of capital employed in the State. (Laws of 1908, Chap. 240, p 53.)

MASSACHUSETTS

Constitutional Provisions

Nothing specific on mines.

Statutory Provisions

Uniformity All property shall be subject to taxation. (Rev. Laws of 1902, Chap. 12, Sec. 2.)

Capital stock Domestic mining and quarrying companies pay semi-annually a tax of 1/20 of one percent on the par value of the whole amount of capital stock. (Ibid., Chap. XIV., Sec. 49.) Foreign companies pay semi-annually 1/40 of one percent. In no case is the tax more than $300. The value of the real and personal property is deducted from the par value of the stock.

Net profits Domestic mining and quarrying companies are required to pay a tax of four percent upon net profits estimated from reports filed with the tax commissioner. (Ibid., Chap. XIV., Sec. 51.)

MICHIGAN

Constitutional Provisions

<u>Uniformity</u> The legislature shall provide an uniform rule of taxation, except on property paying specific taxes, and taxes shall be levied on such property as prescribed by law. (Const., Art. XIV., Sec. 11.)

<u>Specific taxes</u> The State may continue to collect all specific taxes accruing to the treasury under existing laws. The legislature may provide for the collection of specific taxes from banking, railroad and other corporations hereafter created. (<u>Ibid.</u>, Art. XIV., Sec. 10.)

<u>Assessing</u> Property shall be assessed at its full cash value. (<u>Ibid.</u>, Art. XIV., Sec. 12.)

Statutory Provisions

<u>Property tax</u> All property real and personal, within the jurisdiction of the State, not expressly exempted, shall be subject to taxation. (Compiled Laws of 1897, Sec. 3824.)

Real property includes all lands, buildings, fixtures, and appurtenances thereto, except as expressly exempted by law. (<u>Ibid.</u>, Sec. 3825.)

<u>Assessing</u> Real property shall be assessed in the township or place where situated. (<u>Ibid.</u>, Sec. 3826.) Personal property includes moneys, annuities, royalties, shares, all interests in land, all improvements on leased lands, except where the value of the real property is also assessed to the lessee or owner of such buildings and improvements. All mining rights in or to any lands or to the ores, oils, gravel, valuable deposits or minerals contained therein which have been or may be reserved in any conveyance of lands shall be valued and assessed against the

owner at the true cash value as an interest in real estate by the assessors of the assessment district where such lands are situated. The mining rights or interests shall be subject to taxation as an interest in real estate at the same rate and subject to all the provisions of the state laws relating to the assessment and taxation of real property. (Pub. Acts, 1911, Chap. 51.)

Special appraisal An act of April 25, 1911 made an appropriation of $30,000 to defray the expenses of an appraisal of the "mining properties" and "mining rights" in the state which are subject to taxation according to law. This appraisal was made under the supervision of the Board of State Tax Commissioners and the report was required on or before the third Monday of August, 1911. (Pub. Acts, 1911, Chap. 114.)

MINNESOTA

Constitutional Provisions

Uniformity All taxes shall be as nearly equal as possible and all property on which taxes are to be levied shall have a cash valuation and be equalized and uniform throughout the state. (Const., Art. IX., Sec. 1.) All real and personal property shall be subject to taxation at its true value in money. (*Ibid.*, Art. IX., Sec. 3.)

Statutory Provisions

Assessing All property shall be assessed at its true and full value in money. (Gen. Stat., 1913, Sec. 1987.)

In valuing real property on which there is a mine or quarry, the same shall be valued at such a price as such property including the mine or quarry would bring at a fair voluntary sale for cash. (Ibid., Sec. 1987.)

Real property includes the land itself, buildings, improvements, and all rights and privileges appertaining thereto, and all mines, minerals, quarries, fossils on or under the same. (Rev. Laws, 1905, Sec. 796.) Mineral rights owned separately from the surface may be assessed and taxed separately from such surface rights. (Laws of 1905, Chap. 161.)

Classification and valuation of property All real and personal property subject to a general property tax and not subject to any gross earnings or other lieu tax is hereby classified for purposes of taxation as follows:

Class 1: Iron ore whether mined or unmined shall constitute class one (1) and shall be valued and assessed at fifty (50) percent of its true and full value. If unmined, it shall be assessed with and as a part of the real estate in which it is located, but at the rate aforesaid. The real estate in which iron ore is located, other than the ore, shall be classified and assessed in accordance with the provisions of classes three (3) and four (4) as the case may be. In assessing any tract or lot of real estate in which iron ore is known to exist the assessable value of the ore exclusive of the land in which it is located, and the assessable value of the land exclusive of the ore shall be determined and set down separately and the aggregate of the two shall be assessed against the tract or lot. (Minn. Laws of 1913, Chap. 483.)

Money and credits "Money" and "credits" are hereby exempted from taxation other than that imposed by this act and shall hereafter be subject to an annual tax of three mills on each dollar of the fair cash value thereof. (Laws of 1911, Chap. 285, Sec. 1.)

"Credits" shall mean and include every claim and demand for money or other valuable things, and every annuity or sum of money receivable at stated periods. (Rev. Laws of 1905, Sec. 798.)

All taxes paid to the county treasurer under the provisions of this act shall be apportioned, one-sixth to the revenue fund of the State of Minnesota, one-sixth to the county revenue fund, one-third to the city, village, or town and one-third to the school district in which the property is assessed. (Laws of 1911, Chap. 285, Sec. 13.)

MISSISSIPPI

Constitutional Provisions

Uniformity Taxation shall be uniform and equal throughout the State. Property shall be taxed in proportion to its value. Property shall be assessed by uniform rules according to its value. (Const., Sec. 112.)

Corporations The legislature may provide for a special mode of valuation and assessment of corporate property. (Ibid., Sec. 112.)

Statutory Provisions

Assessing Property shall be valued on a full cash basis. (Code of 1906, Chap. 122, Sec. 4268.)

Corporations Corporations pay a property tax on their lands which are assessed the same as land of individuals. The capital stock is assessed at market value and an allowance is made for property taxed. (Code of 1906, Chap. 122, Sec. 4267.)

MISSOURI

Constitutional Provisions

Uniformity Taxes shall be uniform upon the same class of subjects within the territorial limits of the authority levying the tax. (Const., Art. X., Sec. 3.)

Property tax All property subject to taxation shall be taxed in proportion to its value. (*Ibid.*, Art. X., Sec. 4.)

Exemptions All laws exempting property, other than as enumerated, shall be void. (*Ibid.*, Art. X., Sec. 7.) The power to tax corporations and corporate property shall not be surrendered or suspended by act of the General Assembly. (*Ibid.*, Art. X., Sec. 2.)

Corporation fee All corporations upon organization under the laws of the State shall pay a graduated fee. (*Ibid.*, Art. X., Sec. 21.)

Statutory Provisions

Property tax Taxes shall be levied on all property, real and personal, except as stated. (Rev. Stat., 1909, Sec. 11334.)

Assessing All property of all mining corporations shall be assessed and taxed in their corporate names. (*Ibid.*, Sec. 11357.)

MONTANA

Constitutional Provisions

Uniformity Taxes shall be uniform on the same class of subjects in the same jurisdiction. (Const., Art. XII., Sec. 11.) The legislature shall levy a uniform rate of assessment. All property shall be taxed at its true value. (*Ibid.*, Art. XII., Sec. 1.)

Licenses The legislature may impose a license tax upon persons and corporations doing business in the State. (Ibid., Art. XII., Sec. 1.)

Corporations The power to tax corporations shall not be suspended. (Ibid., Art. XII., Sec. 7.)

Mineral property Mining claims including those containing gold, silver, copper, lead, coal, or other valuable mineral deposits, after purchase from the United States shall be taxed at the price paid the United States therefor when used for mining purposes. Any part used for other purposes shall be taxed at its value for such other purposes as provided by law. (Ibid., Art. XII., Sec. 3.)

All machinery used in mining and all property and surface improvements which have a separate value from such mines or mining claims shall be taxed as provided by law. (Ibid., Art. XII., Sec. 3.) Annual net proceeds of all mines and mining claims shall be taxed as provided by law. (Ibid., Art. XII., Sec. 3.)

Statutory Provisions

Property tax All property is subject to taxation except as exempt. (Rev. Code of 1907, Sec. 2498.)

Real estate includes all mines, minerals, and quarries in and under the land. (Ibid., Sec. 2501.) Improvements on mining claims are not exempt from taxation. (Ibid., Sec. 2570.)

Net proceeds tax All mines are taxed upon the net proceeds at the same rate applied to property. The local assessors determine the net proceeds by deducting from the value of the output the actual cost of extracting from the mine, the actual cost of transportation to the place of reduction or sale, the actual cost of reduction or sale, and the cost of repairs and necessary construction about the mine, mill, and reduction works. No deduction is made for the salaries of officers not actually engaged in the working of the mine. (*Ibid.*, Sec. 2562 to 2571.)

NEBRASKA

Constitutional Provisions

Uniformity Taxes shall be uniform as to class and in proportion to value. (Const., Art. IX., Sec. 1.)

Statutory Provisions

Property tax Real estate shall include all mines, minerals, quarries, mineral rights, mineral springs, and wells, and all privileges pertaining thereto. (Rev. Stat., 1903, Sec. 10400.) Property of companies and mines shall be listed and taxed where located. (*Ibid.*, Sec. 10403.)

NEVADA

Constitutional Provisions

Uniformity The legislature shall provide by law for a uniform and equal rate of assessment and taxation, and shall prescribe such regulations as shall secure a just valuation for taxation of all property, real, personal and possessory, except mines and mining claims. (Const., Art. X., Sec. 1.)

Mines and mining claims Mines and mining claims, not patented, shall be taxed upon the proceeds alone. When patented, each mine shall be assessed at not less than five hundred dollars except when one hundred dollars in labor has been actually performed on such patented mine during the year, in addition to the tax upon net proceeds. (*Ibid.*, Art. X., Sec. 1.)

Statutory Provisions

<u>Property tax</u> Patented mining claims on which less than one hundred dollars worth of work has been done during the year are assessed at five hundred dollars. (Laws of 1913, Chap. 83, Sec. 1.) Surface improvements and net proceeds are taxed at the same rate as property in general, payable quarterly. (Rev. Laws, Sec. 3622, 3687.) The Tax Commission ascertains the proceeds by deducting from the gross yield only such actual costs of extraction from the mine, of milling and concentrating, of transportation, reduction, and sale as shall be deemed by said commission to be just, proper and reasonable, and not introduced to deprive or defraud the State of any portion of its just revenue. In any suit at law arising under the provisions of this section, the burden of proof shall be upon the owner of such mine to establish that any item of cost disallowed by the commission is nevertheless, just, reasonable and proper and not entered to defraud the State. (Laws of 1913, Chap. 134, Sec. 9.)

NEW HAMPSHIRE

Constitutional Provisions

<u>Uniformity</u> The general court shall have power to levy proportional and reasonable assessments, rates, and taxes upon all persons and estates within its limits. (Part 2, Art. 5.)

Statutory Provisions

<u>Property tax</u> Real estate shall be taxed independently of any mines or ores contained therein until such mines or ores shall become a source of profit. (Pub. Stat., 1901, Title IX., Chap. 55,

Sec. 4.)

When mines, ore, or rights therein are owned by a person other than the one to whom the real estate belongs, they are taxed separately as real estate. (Ibid., Title IX., Chap. 58, Sec. 2.)

Corporation Stock in corporations in the State shall be taxed except where the property represented by the stock is taxable directly to the corporation. (Ibid., Title IX., Chap. 55, Sec. 7.)

Stock in corporations located out of the State, owned by persons living in the State, shall be except where either the stock or the property represented by it is taxed in the towns or states where the corporations are located. (Ibid., Title IX., Chap. 55, Sec. 7.)

NEW JERSEY

Constitutional Provisions

Uniformity Property shall be assessed for taxes under general laws and by uniform rules, according to its true value. (Const., Art. IV., Sec. 7, Par. 12.)

Statutory Provisions

Property tax All property not exempt shall be taxable at its true value. (N. J. Stat., 1910, Art., Par. 2, Vol. IV., p 5076.)

All property shall be valued by assessors of the respective taxing districts. (Ibid., Art. III., Par. 11, p 5076.)

Franchise tax All corporations pay annually a graduated license fee or franchise tax on the amounts of capital stock issued and outstanding. This does not apply to mining companies having at least fifty percent of their capital invested in the State.

(Laws of 1906, Chap. 19.)

NEW MEXICO

Constitutional Provisions

Uniformity The rate of taxation shall be equal and uniform upon all subjects of taxation. (Const., Art. VIII., Sec. 1.)

Special taxes The legislature shall have power to provide for the levy and collection of license, franchise, excise, and income taxes; also graduated income taxes, and other specific taxes including taxes upon the production and output of mines, oil lands, and forests; but no double taxation shall be permitted. (Ibid., Art. VIII., Sec. 2.)

Statutory Provisions

Exemptions All property not exempt is subject to taxation. (Comp. Laws, Sec. 4018.) Mines and mining claims bearing gold, silver and other precious or useful metals (but not the net product and surface improvements thereof) for a period of ten years from the date of location shall be exempt from taxation. (Ibid., Sec. 1756.)

Property tax Real estate includes all mines, minerals, and quarries in and under the lands, and all rights and privileges appertaining thereto, and improvements. (Ibid., Sec. 4019.) Mines and mining claims shall pay a tax upon surface improvements. (Ibid., Sec. 1560.) All property shall be assessed at one-third actual value. (Laws, 1913, Chap. 84.)

Net product Mines and mining claims shall pay a tax upon the net product. (Comp. Laws, Sec. 1560.)

Corporation The owner of stock shall not be assessed for the stock, if the property represented by the stock has been taxed. (*Ibid.*, Sec. 4025.)

NEW YORK

Constitutional Provisions

Nothing specific.

Statutory Provisions

Property tax Real estate includes land, improvements, and all mines, minerals, quarries, and fossils in and under the same, except mines belonging to the State. (Laws, 1909, Chap. 62, Sec. 3.)

Personal property of mines is taxable locally. (*Ibid.*, Chap. 62, Sec. 5.)

Franchise tax Domestic mining companies having more than forty percent of their capital stock invested in the State are exempt from the capital-stock tax. The rate of this tax varies according to net assets, market price of the stock, and dividends paid. (*Ibid.*, Chap. 62, Sec. 182 and 183.)

NORTH CAROLINA

Constitutional Provisions

Uniformity Taxation shall be by uniform rule of all real and personal property according to its true value in money. (Const., Art. V., Sec. 3.)

Income tax The legislature may tax incomes, but not both property and income. (*Ibid.*, Art. V., Sec. 3.)

Statutory Provisions

Assessing Real property shall be valued according to its true value in money, considering the mines, minerals, quarries or other available deposits known to be available therein and their value. (Rev. Stat., Sec. 5203.) Real property includes land, improvements and all rights and privileges and all estates therein. (Laws of 1903, Chap. 251.) Mineral rights severed from the surface shall be assessable to the owner of the mineral rights. (Laws of 1911, Chap. 50, Sec. 34.)

Capital stock Every corporation shall pay to the state treasurer annually a tax upon each one hundred dollars of the actual value of its whole capital stock. (Rev. Stat., 1905, Sec. 5108.)

NORTH DAKOTA

Constitutional Provisions

Uniformity All property in the State shall be subject to taxation. (Rev. Code 1905, Sec. 1481.)

Property tax All property shall be assessed at its full value in money. (*Ibid.*, Sec. 1512.) Real property includes lands, improvements, and all mines, minerals, and quarries in and under the same and all rights and privileges appertaining thereto. (*Ibid.*, Sec. 1482.)

Assessors shall assess each division of lignite coal and minerals (separate mineral right) in the county in which it actually lies when the ownership is severed from that of the surface, whether the minerals are known to exist or not. (Laws of 1911, Chap. 297.)

OHIO

Constitutional Provisions

Uniformity All property shall be taxed according to a uniform rule at its true cash value. (Const., Art. XII., Sec. 2.)

Corporation Corporate property shall forever be taxed like the property of individuals. (Ibid., Art. XII., Sec. 4.)

Mines Laws may be passed providing for the imposition of taxes upon the production of coal, oil, gas, and other minerals. (Ibid., Art. XII., Sec. 10.)

Statutory Provisions

Property tax All property shall be subject to taxation. (Gen. Code, 1910, Sec. 5328.)

Real property includes not only land, but all improvements and all rights. (Ibid., Sec. 5322.) Property shall be assessed at its true value in money. Mineral rights, separately owned from the surface, shall be assessed and taxed independently of the surface and against the owner of the rights. (Ibid., Sec. 5560.) If the value of any petroleum, oil, and natural gas wells, coal and ore mines, limestone quarries, fire-clay pits, or works of any kind designed for the production of mineral of any kind increases or diminishes in value $100 from the valuation in the quadrennial assessment, the assessor may make corrections annually when he lists personal property. (Laws of 1911, p 89.)

OKLAHOMA

Uniformity Taxation shall be uniform on the same class of subjects. (Const., Art. X., Sec. 5.)

Assessing All property which may be taxed ad valorem shall be assessed for taxation at its fair cash value, estimated at the price it would bring at a fair voluntary sale. (Ibid., Sec. 8.)

Specific taxes The legislature shall have power to provide for the levy and collection of license, franchise, gross revenue, income and graduated income taxes; also production or other specific taxes. (Ibid., Sec. 12.)

Statutory Provisions

Property tax All property shall be subject to taxation. Okla. Stat., 1910, Sec. 7302.) Real property shall be construed to mean the land itself and all buildings, structures, and improvements and all rights and privileges thereto appertaining, and all mines, minerals and quarries on or under the same. (Ibid., Sec. 7304.) Oil and gas property shall be listed. (Ibid., Sec. 7332.)

Upon persons holding more than 640 acres of taxable land there is levied a graduated land tax in addition to the ad valorem tax charged against all property. The rate is graduated from one-fourth percent of the value of land in excess of 640 acres when the person holds not to exceed 1280 acres, to 10 percent upon the excess over 10,000 acres and not exceeding 25,000 acres of average taxable value. The average taxable value is taken as twenty dollars. Three hundred twenty acres shall be exempt from the tax regardless of the value of the land. (Ibid., Sec. 7525.) A similar graduated tax is levied upon leaseholders. When a person holds by lease more than 640 acres and not to exceed 1280 acres a tax of one percent per annum is levied upon the income, rents, and profits of the excess over 640 acres. The rate is increased according to the acreage held, up to 10 percent upon the income from the excess over 5,000 acres and not exceeding 10,000 acres. (Ibid., Sec. 7526.)

Mineral on hand more than 30 days shall be taxed ad valorem. (Laws of 1913, Chap. 240, Art. 2.)

Gross output tax In addition to the ad valorem tax on property, mining and oil companies pay a tax on the actual cash value of the output. Quarterly reports must be filed by mining oil companies and on these reports the taxes are levied as follows: One-half percent on coal, one-half percent on lead, zinc, jack, gold, silver, copper, and asphalt, one-half percent on petroleum, oil, and gas. Royalty paid to any Indian tribe or landlord may be deducted from the gross receipts. (Rev. Laws, 1910, Sec. 7464) The rate on petroleum oil and gas was increased to three-fourths of one percent by the legislature of 1913. (Sess. Laws, 1913, Chap. 240, Art. 2.) When ad valorem taxes are later levied on refined oil or the product of a smelter, etc., a rebate is allowed on the gross proceeds tax. (Rev. Laws, 1910, Sec. 7466.) All taxes levied under this act shall be paid into the state treasury and applied to the ordinary expenses of state government. (Rev. Laws, 1910, Sec. 7469.)

License tax Domestic corporations pay a license fee of $50 per $1000 capital stock, and foreign corporations $100 per $1000 capital stock employed in the State. This does not apply to companies paying the gross receipts tax. (Rev. Laws, 1910, Sec. 7539.)

OREGON

Constitutional Provisions

Uniformity There shall be a uniform rate of assessment and taxation. All property shall be taxed at its just value. (Const., Art. IX., Sec. 1.)

Statutory Provisions

Property tax All real property and all personal property shall be subject to assessment and taxation in equal proportion. (Gen. Laws of 1909, Sec. 3551.) Real estate includes the land itself, improvements, all rights and privileges, and all mines, minerals, quarries, fossils, in, under, or upon the land. (*Ibid.*, Sec. 3552.) Personalty includes improvements by persons on lands claimed by them under the laws of the United States. (*Ibid.*, Sec. 3553.)

Corporation license fee Domestic mining companies having an output in excess of one thousand dollars pay annually a fee ranging from $10 on $5000 capital to $200 if the capital stock exceeds $2,000,000. If the output is less than $1000, they pay $10 per annum as a license. (Laws, 1913, Chap. 73.)

PENNSYLVANIA

Constitutional Provisions

Uniformity All taxes shall be uniform on the same class of subjects. (Const. Art. I., Sec. I., Par. 153.)

Statutory Provisions

Property tax Companies pay locally a property tax. (Act of 1844, P. L. 486.)

<u>Anthracite tax</u> Every ton of 2240 pounds of anthracite mined is subject to a tax of 2 1/2 percent of the value at the mine when prepared for market. (Laws of 1913, Act 374.)

<u>Capital stock</u> Corporations pay an annual tax of 5 mills on each dollar of the actual value of its capital stock. (Pa. Stat., Vol. II., p 1970.)

<u>Loans</u> A deduction of 4 mills on every dollar of the face value of bonds or certificates of indebtedness is made by the treasurer of corporations when paying interest to bondholders. This deduction is to be paid to the state treasurer. (Act of June 30, 1885, P. L. 194; Act of June 8, 1891, P. L. 229.)

RHODE ISLAND

Constitutional Provisions

Nothing specific on mines.

Statutory Provisions

<u>Property tax</u> All property shall be subject to taxation. (Gen. Laws of 1909, Chap. 56, Sec. 1.)

All property shall be assessed at its full and fair cash value. (<u>Ibid.</u>, Chap. 58, Sec. 3.)

SOUTH CAROLINA

Constitutional Provisions

<u>Uniformity</u> Taxation shall be uniform on all property, except mines and mining claims, the proceeds of which alone shall be taxed. (Const., Art. X., Sec. 1.)

Statutory Provisions

Property tax All real and personal property shall be taxable except as noted. (Code of 1912, Title III., Chap. XIV., Par. 287.)

All personal property used in connection with mines and mining claims and all land not actually mined connected with mines and mining claims shall be assessed for taxation and taxed as is done in the case of all other personal and real estate. (Ibid., Par. 304.)

Gross proceeds In all cases where land is actually mined, such land shall not be assessed for taxation or taxed, but in lieu thereof, the gross proceeds alone of such mines and mining claims shall be assessed and taxed. Such gross proceeds shall be determined by the cash market value of the material mined. (Ibid., Par. 304.)

Corporation license Corporations shall pay a tax of one-half mill upon each dollar of capital stock. (Ibid., Par. 364.)

SOUTH DAKOTA

Constitutional Provisions

Uniformity All taxes shall be uniform on all property. (Const., Art. XI., Sec. 2.)

Statutory Provisions

Property tax All real and personal property shall be subject to taxation. (Compiled Laws, 1913, Sec. 2053.) Real property shall include all lands, improvements, and all rights and privileges thereto belonging, and all mines, minerals and quarries in and under the same. (Ibid., Sec. 2054.) All property shall be assessed at its true value in money. (Ibid., Sec. 2085.) In valuing any real property upon which there is a coal or other mine, or stone or other quarry, the same shall be valued at such a price as such property including the mine or quarry, would sell at a fair voluntary sale for cash. (Ibid., Sec. 2085.)

TENNESSEE

Constitutional Provisions

Uniformity All property, real and personal, shall be taxed according to its value so that taxes shall be equal and uniform throughout the State. No one species of property shall be taxed higher than any other species of the same value. (Const., Art. II., Sec. 28.) The legislature may tax incomes derived from stocks and bonds not taxed ad valorem. (Ibid., Sec. 28.)

Statutory Provisions

Property tax All property shall be assessed. (Code of 1896, Sec. 688.) All mineral interests shall be taxed as real estate.. (Ibid., Sec. 774.) Machinery shall be taxed as personal property. (Ibid., Sec. 777.)

Income tax Income from stocks and bonds not taxed ad valorem shall be taxable. (Ibid., Sec. 690.)

Corporation tax On incorporation there shall be a tax of ten dollars. (Ibid., Sec. 720.) All corporations shall pay an ad valorem tax upon the full value of corporate property, - not less than the actual value of all shares of stock, together with the actual value of the bonded indebtedness. (Ibid., Sec. 794.) Deduction shall be made for property outside the State. (*Ibid.*, Sec. 796.)

TEXAS

Constitutional Provisions

Uniformity Taxation shall be equal and uniform. All property shall be taxed in proportion to its value which shall be ascertained as provided by law. (Const., Art. VIII., Sec. 1.) The legislature shall have no power to release from taxation. (*Ibid.*, Sec. 10.)

Income tax The legislature may tax incomes of both natural persons and corporations. (*Ibid.*, Sec. 1.)

Statutory Provisions

Property tax All property shall be subject to taxation. (Statutes, 1911, Art. 7503.)

Real property includes the land itself and all buildings, structures, and improvements thereon, all rights and privileges belonging thereto, and all mines, minerals, quarries, and fossils in and under the same. (*Ibid.*, Art. 7504.)

Property held under a lease or a term of three years or more, or held under a contract for the purchase thereof, belonging to this State, shall be considered for all the purposes of taxation, as the property of the person so holding the same. (*Ibid.*, Art. 7529.) In valuing any real property in which there is a coal or other mine, or stone or other quarry, the same shall be valued at such a price as such property, including the mine or quarry would probably sell at a fair voluntary sale for cash. (*Ibid.*, Art. 7530.)

<u>Corporation tax</u> Individuals and corporations operating oil wells shall make a quarterly report showing the total amount of oil produced during the quarter and the average market value thereof. They shall pay to the state treasurer an occupation tax for the quarter equal to one-half percent of the total amount of all oil produced at the average market value. (*Ibid.*, Art. 7383.)

<u>Franchise tax</u> Domestic corporations shall pay fifty cents on each one thousand dollars of authorized capital stock, unless the amount of stock issued plus the surplus and undivided profits shall exceed its authorized capital stock; in that event said corporations shall pay fifty cents on each thousand dollars of outstanding stock plus the surplus and undivided profits. The minimum tax shall be ten dollars. The rate shall be twenty-five cents per thousand dollars when the capital stock or the capital stock and surplus and profits exceed one million dollars. (*Ibid.*, Art. 7393.) Foreign corporations pay a similar tax but graduated. (*Ibid.*, Art. 7394.)

UTAH

Constitutional Provisions

<u>Mines</u> All mines and mining claims, containing valuable mineral deposits after purchase from the United States, shall be taxed at the price paid the United States therefor, unless the land is used for other purposes. If used for other purposes, it shall be taxed as is property similarly used. Machinery used in mining and all property and surface improvements having a value separate and independent of such mines and the net annual proceeds shall be appraised and taxed by the State Board of Equalization. (Const., Art. XIII., Sec. 4.)

Statutory Provisions

Property Real estate includes all mines, minerals and quarries in and under the land and all rights and privileges appertaining thereto. (Statutes, 1907, Sec. 2505.) Surface improvements having a separate value from the mine or claim not to be exempt from taxation. (*Ibid.*, Sec. 2572.) Capital stock and franchises shall be listed and taxed where the principal office or place of business is located. (*Ibid.*, Sec. 2530.)

Net proceeds tax All mines report annually the net proceeds which are taxed at the same rate as other property. From the gross yield, including coke made from coal, or bullion or matter made from ore not taxed, deductions shall be made for the actual expenditures in mining, transporting, and reducing the product, including expenditures for labor, machinery, supplies used, improvements and transportation; but money invested prior to the period covered by the annual report shall not be included nor the salaries of officers not actually engaged in the state in the operations. The balance shall constitute the net proceeds. (*Ibid.*, Sec. 2566.)

VERMONT

Constitutional Provisions

Nothing specific on mines.

Statutory Provisions

Property tax Real and personal property shall be taxable. (Pub. Stat. 1906, Sec. 488.)

Property shall be appraised quadrennially after 1910.

(Ibid., Sec. 525.) Forges, furnaces, mines, and quarries where stone is quarried shall be set in a column separate from real estate and designated as first-class real estate. All other real estate shall be designated as second-class real estate. (Ibid., Sec. 525.) The interest of a grantee in severance from surface ownership, in mines, quarries, or the right of mining and quarrying shall be set in the list as real estate. (Ibid., Sec. 491)

Exemption Municipalities may exempt from taxation for ten years quarries, mines, and such equipment as is necessary for the prosecution of the business and all capital and personal property used in such business, if the amount invested exceeds one thousand dollars. (Ibid., Sec. 499.)

VIRGINIA

Constitutional Provisions

Uniformity All property, except as provided, shall be taxed. All taxes shall be uniform upon the same class of subjects. Const., Art. XIII., Sec. 168.)

Assessing Property shall be assessed at a fair market value. (Ibid., Sec. 169.) Real estate shall be reassessed every five years. (Ibid., Sec. 171.) The General Assembly shall provide for the special and separate assessment of all coal and other mineral land; but until such special assessment is made, such land shall be assessed under existing laws. (Ibid., Sec. 172.)

Income tax The General Assembly may levy income taxes. (Ibid., Sec. 170.)

Corporation tax The State shall have the right to tax corporations. (Ibid., Sec. 64.)

Statutory Provisions

Property tax All real estate, except as exempted, shall be subject to an annual tax. (Code of 1904, Sec. 456.) Machinery and fixtures to real estate in mining establishments shall be assessed and taxed against the owner thereof. (Ibid., Sec. 485.) In assessing real estate, the actual value of the minerals shall be considered; if the title to the minerals is separate from the title to the surface, it shall be assessed and taxed to the owner. (Laws of 1910, Sec. 437a.)

Corporation tax A graduated state franchise tax is collected, the amount varies from $10 on $25,000 capitalization to $200 on $1,000,000 and $10 for each $100,000 in excess thereof. (Code of 1910, Supp., p 529.)

WASHINGTON

Constitutional Provisions

Uniformity All property shall be taxed in proportion to its value. (Const., Art. VII., Sec. 1.) The legislature shall provide by law a uniform and equal rate of assessment and taxation on all property according to its value in money. (Ibid., Sec. 2.) The legislature may provide for the taxation of corporations. (Ibid., Sec. 3.)

Statutory Provisions

Property tax All property shall be assessed at its true value in money. In valuing any real property in which there is a coal or other mine, or stone or other quarry, the same shall be valued at such a price as such property including the mine or quarry would sell at a fair, voluntary sale for cash. Taxable leasehold estate shall be valued at such a price as it would sell at a fair, voluntary sale for cash. (Code of Washington, Sec. 9112.) All property shall be assessed at not to exceed fifty percent of its true and fair value. (Laws of 1913, Chap. 140.)

License An annual license fee of $15 is levied upon companies having capital stock. (Code, Sec. 3714.)

WEST VIRGINIA

Constitutional Provisions

Uniformity Taxation shall be equal and uniform throughout the state, and all property, both real and personal, shall be taxed in proportion to its value, to be ascertained as directed by law. The legislature shall have power to tax, by uniform and equal laws, all privileges and franchises of persons and corporations. (Const., Art. X., Sec. 1.)

Statutory Provisions

Property tax Personal property includes the value of mine or manufactured products. (Code of 1906, Sec. 794.) Leaseholds.

Mineral rights owned separately from the surface shall be assessed and taxed to their owner. (*Ibid.*, Sec. 723, Sec. 687, 688.) As the minerals are exhausted, if the actual decrease in value is in excess of one hundred dollars, the assessor shall make such reduction in value as shall be proper. (*Ibid.*, Sec. 723.)

WISCONSIN

Constitutional Provisions

Uniformity Taxation shall be uniform. (Const., Art. VIII., Sec. 1.)

Income tax Taxes may be imposed on incomes, which taxes may be graduated, and progressive. (Art. VIII., Sec. 1.)

Statutory Provisions

Property tax All property, unless specially provided for shall be assessed locally. (Statutes of 1911, Sec. 1034.) Real estate shall include all lands, improvements, rights, etc. (*Ibid.*, Sec. 1035.) Real property shall be valued by the assessor from actual view or from the best information that the assessor can practicably obtain, at the full value which could ordinarily be obtained therefor at private sale. (*Ibid.*, Sec. 1052.) Mineral rights and reservations held by other than the owner of the surface shall be taxable. (*Ibid.*, Sec. 1042j.) The assessor in determining the value of land shall consider mines, minerals, quarries, and other valuable deposits known to be available therein and their value. "But the fact that the extent and value of minerals and other valuable deposits are unascertained shall not preclude the assessor from affixing to such parcel of land, the value that would ordinarily be obtained therefor at private sale." (*Ibid.*, Sec. 1052.

Income tax The State income tax is levied upon corporations and upon individuals. (Laws of Wisconsin, 1911, Chap. 658. Laws of 1913, Chap. 27, 443, 487, 554, 615, 720. Wisconsin Income Tax Law, 2d. Ed., Wis. Tax Com., Madison, 1913.)

The rate upon the income of corporations is 2 percent on the first $1000 of taxable income, and there is a graduation of the rate up to 6 percent on all taxable income in excess of $7000. (Laws of 1913, Chap. 720.)

The rate upon the taxable income of individuals is graduated from 1 percent on the first $1000 to 6 percent on the excess over $12,000.

The term income includes "all royalties from mines or the possession or use of franchises or legalized privileges of any kind." (Ibid., Sec. 1087m-2.)

In determining taxable income, rentals, royalties, and gains or profits from the operation of any mine, or quarry shall follow the situs of the property from which derived. (Ibid., Chap. 720, Sec. 1087-m-2.)

Deductions allowed a corporation include "ordinary and necessary expenses actually paid within the year out of income in the maintenance and operation of its business and property, including a reasonable allowance for depreciation by use, wear, and tear of property from which the income is derived and in the case of mines and quarries an allowance for depletion of ores and other natural deposits on the basis of their actual original cost in cash or the equivalent in cash." (Ibid., Chap. 720, Sec. 1087m-3.)

WYOMING

Constitutional Provisions

Uniformity All taxation shall be equal and uniform. (Const., Art. I., Sec. 28.) All property, except as provided, shall be uniformly assessed for taxation and the legislature shall prescribe such regulations as shall secure a just valuation for taxation of all property. (Ibid., Art. XV., Sec. 11.)

Mines All mines and mining claims shall be taxed on surface improvements and, in lieu of taxes on land, also on the gross product, provided that the product of all mines shall be taxed in proportion to the value thereof. (Ibid., Art. XV., Sec. 3.) All coal lands in the State from which coal is not being mined shall be listed for assessment, valued for taxation and assessed according to value. (Ibid., Art. XV., Sec. 2.)

Statutory Provisions

Property tax All property not exempted is subject to taxation in manner directed. (Comp. Stat. 1910, Sec. 2324.)

Gross product tax In addition to the taxes on surface improvements and in lieu of taxes upon the land on which the claims are being worked, there shall be levied and collected a tax on gross product of all mines, oil-wells, and quarries. (Laws, 1909, Sec. 2449.) The Commissioner of Taxation shall appraise the value of the gross products of all mines, and submit such appraisements to the State Board of Equalization. (Ibid., Chap. 66.)

CHAPTER V

Methods of Taxing Mines and Mineral Lands in the States

Summary

An examination of the laws of the various states shows that at the present time taxes are levied on mining property as follows:

A. A general property tax.

B. A tax on the gross output or gross earnings, in addition to a property tax on improvements and, in some states, on land.

C. A tax on net earnings, in addition to a property tax on improvements and, in some states, on land.

D. A tax on some percentage of the gross and of the net earnings in addition to a tax on improvements and, in some states, on land.

In addition to one of the foregoing, there may be:

E. Corporation tax, including a license or business tax.

F. A state income tax.

Several states have previously used a tax which is not at present employed anywhere in the United States, namely,

G. A tonnage tax.

General Property Tax

With the exception of South Carolina in the South; Oklahoma in the Middle West; and Colorado, Wyoming, Montana, Idaho, Utah, Nevada, and New Mexico in the West, all of the states now levy the general property tax on mining property the same as on other property.[1]

As applied to mines the general property tax possesses the same advantages and disadvantages that prevail in its application to property in general, and in addition it may be said that the task of making a fair appraisal is more difficult for mines than for most other types of property. This is due to the fact that a technical knowledge of mines and mining operations is necessary on the part of the appraiser, if a proper valuation is to be made.[2]

The constitutions of most of the states have prescribed such limitations regarding taxation that the property tax as now employed is practically the only method which can be used in taxing mines, and it seems that the best plan of procedure in such states is to enact laws providing for the assessment of all property at full cash value, with competently trained and experienced mine appraisers to determine the value of mining property.

At the present time, with the exception of Minnesota, Michigan, Wisconsin, Arizona, Virginia, West Virginia, and Ohio, all the important mining states assessing mines under the general property tax, rely upon the work of local assessors. In those states in which the appraisal of mining property has been centralized or supervised by state officers there has been secured apparently a valuation of property which is generally recognized as

1 In addition to the general property tax, Pa. levies an additional tax upon anthracite mines. (See next page for footnote 2.)

being more equitable than is possible under the system of local and unsupervised assessment.

In 1913 the states taxing mines under the general property tax produced 82.66 percent of the total output of the mineral industry. In 1915, Arizona joined the list of states taxing mines under the general property tax and if Arizona had been included in the list of general property tax states in 1913, the percentage would have been increased from 82.66 to 85.56.[1] From these data it is apparent that, at the present time at least, one of the greatest problems to be solved in the mining states is that of valuation of mines, for the purpose of taxation.

Gross Output and Property Tax

South Carolina and Wyoming. In several states the gross value of the entire output of mines is entered upon the tax roll of the district and the mine is taxed on the value of its output at the same rate as is applied to property in general. This is in effect a declaration that the value of a mine is equivalent to the value of the product for one year. In addition, mines pay a property tax upon improvements.

This plan is followed by Wyoming and South Carolina. Wyoming[2] levies taxes on improvements, and in lieu of taxes upon the land, while the property is being worked, a tax upon the gross product. This applies to all mines, oil-wells, and quarries.[3]

2 The appraisal of mines is considered in Chapter VII.

1 If the value of the coal output of Colorado, taxed under the general property tax, is included with the value of the output of the general property tax states, the percentage becomes 86.50.

2 Laws of Wyoming, 1909, Sec. 2449.

3 The assessment of all mines is based upon the gross output, allowance being made for operating expenses and also the valuation of the output at the mine, as regards distance from market, or

The Constitution of South Carolina provides that only the proceeds of mines shall be taxed.[1] However, the statutes provide for the taxation of the personal property used in connection with mines and mining claims.[2] When land is actually mined it is exempt from taxation[3] and the proceeds are assessed at the cash market value and taxed at the same rate as other property.

<u>Oklahoma</u>. A variation from the preceding method as employed in South Carolina and Wyoming has been used by Oklahoma. In this State in addition to the ad valorem tax on property, all mining and oil companies pay a tax on the actual cash value of the output. Quarterly reports are required from these companies and on these reports the taxes are levied as follows: One-half percent on coal, one-half percent on lead, zinc, jack, gold, silver, copper, and asphalt three-fourths percent on petroleum, oil, and gas. Royalty paid to an Indian tribe or landlord may be deducted from the gross receipts.[4]

This is actually a gross earnings or gross output tax, the South Carolina and Wyoming method being practically a general property tax levied upon the value of the mine which is taken arbitrarily as the value of one year's output. The rate of the tax in Oklahoma is the same from year to year while in South Carolina and Wyoming the rate paid by mines depends on the levy upon all property.

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railroads, quality of coal, etc. The State is districted and the same valuation placed upon the product of each district separately." Correspondence.

1 Const., Art. X., Sec. 1.

2 Code of 1912, Title III., Chap. XIV., Par. 304.

3 <u>Ibid.</u>, Par. 304.

4 Session Laws of Oklahoma, 1910, Chap. 44, Sec. 6, as amended by Session Laws, 1913, Chap. 240, Art. 2.

Pennsylvania. In 1913 the Pennsylvania legislature enacted a law providing for a tax at the rate of two and one-half per cent of the value at the mine of every ton of anthracite when prepared for market.[1] This follows the Oklahoma method in that the rate is fixed. However, the Pennsylvania tax is in addition to the property taxes which have been levied previously. The so-called "anthracite tax" is a state tax, but one-half of the proceeds of the tax is returned to the county.

A tax on output at a uniform rate throughout the State reduces mining practically to a leasing system. Title to the mine rests in the operator instead of the State as may be the case in the leasing system. In both instances the State receives a percentage of the value of the output.

The general objection made to this method of taxation is that usually no discrimination is made between mines producing at a high cost and those operating at low costs.[2]

Net Earnings and Property Tax

Several of the Rocky Mountain states employ a tax upon both the net earnings and the improvements of productive mines. The net earnings tax was first used in order to encourage the development of mining property; it exempted unprofitable mines and attempted to place the tax burden according to ability. Instead of levying upon the net earnings of mines at a fixed or a graduated rate, all of the states now using this method of taxation tax net

1 Laws of Pennsylvania, 1913, Act 374.

2 See also Chap. VI.

earnings at the same rate as other property, thus practically appraising each mine at its net earnings for one year.

The great difficulty in the use of this system is in the determination of the net earnings. The statutes of most of the states employing this method of taxation specify what deductions may be made from gross earnings in order to determine the net.

This system is now used in Idaho, Montana, Nevada, New Mexico, and Utah. Colorado uses a modified form of the system.

Idaho. Idaho taxes all mining claims purchased from the United States at the price paid the United States therefor, unless the surface, or some part of it, is used for purposes other than mining, in which event the land is taxed as is other land similarly used.[1] All machinery and improvements on mines and mining claims are taxed as is other property.[2] In addition to these property taxes, all mines pay a tax upon net profits. To determine the base for the net profits tax, deductions are made from the gross receipts as follows:

The actual expenditure for mining operations, for milling, concentrating, or reducing the ore, for transportation of the ore to the treatment plant, and for repairs, and improvements necessary to the plant used in all these operations. No deductions are allowed for the money invested in the mine, nor for the salaries of officers not immediately and consecutively employed in the working or management of the mine.[3]

Montana. Similarly, Montana taxes mining claims,[4] improvements[5] and the net proceeds.[6]

1 Code of Idaho, Sec. 1863.
2 Ibid., Sec. 1863.
3 Laws of Idaho, 1909, Sec. 1864.
4 Const., Art. XIII., Sec. 3.
5 Rev. Code Mont., Sec. 2570.
6 Ibid., Sec. 2563 to 2571.

Nevada. Nevada taxes surface improvements, net proceeds, and patented mining claims on which less than one hundred dollars' worth of work has been done during the year, such a claim being assessed at five hundred dollars. The same rate is applied to net proceeds as to property in general.[1]

New Mexico. New Mexico exempts metalliferous mining claims for ten years from the date of location, but not the net proceeds and surface improvements.[2] Mines and mining claims are taxed both upon surface improvements and the net product.[3] Instructions for estimating the net product are not included in the laws.

Utah. Utah appraises mining claims at the price paid for them to the government. Taxes are levied upon patented claims, all property and surface improvements,[4] and the net proceeds at the same rate applied to other property.[5]

Gross and Net Earnings Tax with the General Property Tax

The method of taxing a mine upon the gross earnings does not discriminate between profitable and unprofitable mines, nor between developing mines with a small output produced at a loss and developed properties. No distinction is made between two mines of equal output but operating under different conditions. On the other hand the system of taxing mines upon net earnings does not

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1 Laws of 1913, Chap. 83 and 134.
2 Compiled Laws of New Mexico, Sec. 1756.
3 Ibid., Sec. 1560.
4 Compiled Laws, Sec. 2504 and 2572, as amended by Laws of 1909, Chap. 63.
5 Rev. Stat., 1907, Sec. 2566 to 2569.

reach the unprofitable mine which may have some cash value and under the system of valuing mines at their net earnings for one year the rate applied to other property might not take from mines a fair share or the revenue required.

By a combination of some percentage of the gross earnings with some percentage of the net earnings it has been thought that greater justice may be secured. This plan is now followed by Colorado and was used in 1913 and 1914 by Arizona.

Colorado. The law of Colorado divides mining property, except mines of coal, iron, asphaltum and quarries, into producing and non-producing. Those having a gross annual output of less than five thousand dollars are classed as non-producing and all others are producing.[1] Producing mines are taxed upon a sum equal to one-half the gross proceeds plus all the net proceeds as defined in the law.[2] The net proceeds are determined by deducting from the gross value of the product, the actual cost of mining, of transporting the product to the place of reduction or sale, and the actual cost of treatment, reduction or sale. Salaries of officers not actually and consecutively engaged may not be included.[3] The surface improvements of all mines are taxable as is other property.[4] Producing mines of coal, iron, asphaltum and quarries are assessed in the same manner as other property.[5]

Arizona. In 1913 Arizona adopted a new plan for appraising mines under the general property tax. This plan was to be void after June 30, 1915, and as the legislature of 1915 failed to pro-

1 Colo. Rev. Stat., 1908, Sec. 5618.
2 Laws of 1913, Chap. 139.
3 Ibid., Chap. 139.
4 Rev. Stat., 1908, Sec. 5621.
5 Ibid., Sec. 5625.

vide any special laws for the taxation of the mines, the mines will be taxed under the laws applying to property in general. While the act of 1913[1] specified that this method of taxation, adopted only for the time, was not to be considered as a method of taxing proceeds, yet the law in its wording, and in its operation apparently, was in no important detail different from the taxes on proceeds employed by the other states. All mines were taxed upon improvements. Mines were divided into two classes, - producing and non-producing. A producing mine was defined by the law as one which yielded net proceeds over and above the expenses enumerated in the law.[2] All other mines were classed as non-producing and were taxed as other real estate. In addition to the taxes on improvements, producing mines paid a tax, at the same rate as property in general, upon the value of the mine which value was fixed arbitrarily by the law at four times the net proceeds plus one-eighth of the gross proceeds.[3] The net proceeds were determined by deducting from the gross the actual expenses of operation and treatment including charges for repairs and betterment, and for transportation. It was specified that such expenses should not include money invested in the purchase price of the mine, in real estate, or in the construction of new mills or reduction works, nor the salaries of any portion of them of any persons not actually and consecutively engaged in working or managing the mine.[4]

There was great dissatisfaction on the part of many of the tax payers of Arizona during the time this law was in force and

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1 Rev. Stat., 1913, Sec. 4994.
2 <u>Ibid.</u>, 1913, Sec. 4980.
3 <u>Ibid.</u>, Sec. 4982.
4 <u>Ibid.</u>, Sec. 4982.

there is considerable complaint in Colorado both on the part of the mine-owners and the other tax-payers.

Tonnage Tax

Mines may be taxed upon the tonnage basis, that is, there may be a fixed or graduated tax upon every ton of mineral product mined. When there is a flat rate there is no distinction in regard to the quantity, market price, or net value of the tonnage produced.

The tonnage tax was not employed by any state in 1915.[1] A tonnage tax was employed in Michigan from 1853 to 1891. The rate applied was fixed by the legislature and was changed from time to time as the finances of the State required and as the physical condition of the mines and the financial condition of the mining industry warranted. The tax was primarily a state tax and no attempt was made at graduation. That portion of the law[2] which discriminated between ore smelted in the State and that shipped out of the State for treatment was declared unconstitutional, as being in restraint of interstate commerce. Since the law has been repealed, there has been almost continually a demand for the enactment of a tonnage tax law. The State Constitution permits specific taxes but although the representatives of the mining districts constitute a minority of the State Legislature, tonnage tax bills have

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1 Florida collects a graduated license tax from phosphate plants. The graduation is upon the basis of tonnage as follows: Plants of not more than 20 tons daily capacity, $10 tax; 20 to 30 tons, $15 tax; 35 to 50 tons, $25 tax; 50 to 65 tons, $40 tax; more than 65 tons capacity, $75 tax. Laws of Florida, Chap. 5597, Sec. 8.

2 Jackson Mining Co. v. Auditor General, 32 Mich. 488.

failed of enactment. In 1914 a movement was started to force legislative action by the "initiative" but when the facts concerning mine taxation in Michigan became generally known in the agricultural districts of the State, the movement lost force and in 1915 there was practically no support in the State Legislature for the tonnage tax measures.

In Minnesota a tonnage tax was employed from 1881 to 1897. In 1896 the law was declared unconstitutional and it was repealed by the Legislature in 1897. There was subsequently an effort to restore a tonnage tax system as the appraisal of mines by the local assessors was impractical. Since the appraisal of mines has been made under the supervision of the Tax Commission there has been little sentiment in favor of a tonnage tax. It is recognized generally that in order to secure justice in Minnesota a tonnage tax should be graduated. In order to secure the facts upon which such graduation might be based and then to apply this graduated rate would require as much labor and skill in appraisal as the system now in use.

Both Maryland and Pennsylvania formerly employed a tonnage tax on mineral products which tax was collected through the railroad carriers. The Pennsylvania Act of 1864 levying a tax of two cents on the product of mines, quarries, and clay-beds was declared unconstitutional in 1872.[1]

The Maryland law was held unconstitutional in 1874.[2]

In 1873 a special road tax was levied by townships in Pennsylvania at the rate of one and one-half cents per ton of ore hauled by teams.[3]

1 15 Wall. 232.
2 40 Md. 22.
3 73 Pa. 370.

Corporation Taxes

Corporations may be taxed in three ways. "The first consists in subjecting corporations to the general property tax only, the second in imposing special taxes in addition to the general property tax, and the third in taxing selected classes of corporations by special methods solely for state purposes."[1]

In summarizing the bases of corporation taxes, Professor Seligman enumerates; (1) Value of the property; (2) cost of the property; (3) capital stock at par value; (4) capital stock at market value; (5) capital stock plus bonded debt at market value; (6) capital stock plus total debt, both funded and floating; (7) bonded debt or loans; (8) business transacted; (9) gross earnings; (10) dividends; (11) capital stock according to dividends; (12) net earnings; and (13) franchise.[2]

Other than the special methods of taxing all mines, no special method of taxation has been enacted applying to mining corporations as distinguished from other types of corporations. In certain states employing license taxes, licenses may be required of mining plants, as in Florida.[3]

In addition to the taxes levied by the methods previously described, mining corporations are taxed as follows in the important mining states:

California. There is a tax of one percent upon the actual cost value of franchises.[4]

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1 Taxation of Corporations, Part V., p 4, Report of U.S. Commissioner of Corporations, 1914.

2 Seligman, Essays in taxation, p 176.

3 Laws of Florida, Chap. 5597, Sec. 8.

4 Laws of California, 1913, Chap. 6, Sec. 5.

Colorado. Upon capital stock there is levied annually a state license tax.[1]

Idaho. A graduated license tax is levied annually upon capital stock.[2]

Illinois. The excess value of capital stock of mining companies is assessed and taxed by local officials.[3]

Indiana. The county board of review assesses the capital stock excess.[4]

Minnesota. The excess value of capital stock is, in theory, taxed.[5]

Pennsylvania. Upon capital stock there is a tax of 5 mills on the dollar, and on corporate loans 4 mills on every dollar face value.[6]

Utah. An annual license tax, graduated according to authorized capital, is levied.[7]

From the foregoing notes it is apparent that in the mining states themselves, excepting Pennsylvania, the special taxes upon mining corporations are not burdensome. In Pennsylvania the same taxes are levied upon mining corporations as upon other industrial enterprises. Many of the large mining companies are incorporated in states which do not rank among the important mineral producing states and are subject to taxation under the corporation laws[8] of the state in which they are incorporated as well as under the laws of the state in which they are operating.

1 Laws of Colorado, 1911, p 260.
2 Laws of Idaho, 1912, Chap. 6.
3 Rev. Stat. of Illinois, Chap. 120, Sec. 1, 3, 32, 108.
4 Indiana Statutes, Sec. 10165, 10167.
5 Laws of Minnesota, 1878, Chap. 1.
6 Act of June 8, 1891, P.L. 229.
7 Laws of 1909, Chap. 106.
8 See Reports I. to V. on Taxation of Corporations, and Special

State Income Tax

A state income tax is authorized by legislative enactment in Mississippi, North Carolina, Oklahoma, South Carolina, Virginia, and Wisconsin. In addition to the states noted taxation of income is permitted by the constitution of Arizona, California, New Mexico, Ohio, and Utah, but none of them is now taxing incomes.

Under the general property tax, Massachusetts taxes incomes in excess of $2,000 derived from property not taxed. With the exception of Wisconsin, the taxes levied upon incomes are apparently directed at individuals, but the Wisconsin tax is levied upon corporations as well as individuals, firms, and co-partnerships. The Wisconsin law[1] was enacted in 1911 and amended in 1913.

The rate levied upon the income of corporations is graduated as follows:

Two percent on the first $1000 of taxable income or any part thereof, two percent on the second $1000 or part; and increasing by one-half percent on each $1000, to a maximum of six percent on all taxable income in excess of $7,000.[2]

The term "income" is defined to include "all royalties derived from mines",[3] and it is specified that "taxable income, rentals, royalties and gains or profit from the operation of a mine or quarry shall follow the situs of the property from which derived, and income from personal service and from land contracts,

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Report on Taxation, 1913, U.S. Bureau of Corporations. Taxation and Revenue Systems of State and Local Governments, Bureau of the Census, 1914.

1 Laws of 1911, Chap. 658; Laws of 1913, Chap. 27,- 443, 487, 554, 615, and 720.

2 Laws of 1913, Chap. 720, Sec. 1087m-6.

3 Ibid., Sec. 1087m-2.

mortgages, stocks, bonds, and securities shall follow the residence of the recipient."

In estimating the income from mines, a corporation is permitted to make deductions, "including a reasonable allowance for depreciation by use, wear, and tear of property from which income is derived and an allowance for depletion of ores and other natural deposits on the basis of their actual, original cost in cash or the equivalent of cash."[1] A similar deduction is permitted individuals owning mines. Depreciation is never allowed in excess of that actually recorded on the books of the corporation.

Tax on Royalties or Leases

The practice of taxing income, as for example mining "royalties", has not been common in the United States. With the enactment and enforcement of income tax laws, the federal government will secure revenue from this source. In various states the income from mining leases is noted by the assessor who determines what the market value of the leasehold is on the basis of the returns. The holder of the lease is then assessed at this estimate and taxed at the regular property tax rate. Usually by the terms of mining leases in the United States, it is specified that the property owner shall pay all taxes.[2]

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1 <u>Ibid.</u>, Sec. 1087m-3.

2 In Great Britain it is customary to levy a tax upon royalties from mining properties. Proc. Nat. Tax. Assn, 1908, II., 417.

CHAPTER VI

The Systems of Mine Taxation Compared

The various systems of mine taxation previously enumerated differ essentially in respect to the base upon which the rate is levied. In most of the states the same rate that is applied to all property, assessed under the general property tax, is applied to the value of mining property, to the value of output of the mine, or to the net proceeds of mines.[1] With a more or less uniform rate, it is, therefore, important to consider whether the base is a true measure of ability.

In the following section the principal points that will be discussed are: (a) Methods of determining the base and the rate; (b) the certainty and stability of public revenue from mines under the several systems; (c) the amount of the taxes paid during the life of a mine under the several systems; (d) the effect of taxation upon the method and the rate of development of mines; and (e) the systems as applied to unproductive mining property.

<u>General property tax</u> Under the general property tax, mines are usually valued upon the same theory that other property is valued, namely, that ability to pay taxes is measured by the value of the property owned. The base that is determined by assessment and equalization is supposed to bear the proper ratio to other assessed values, whether the property be a mine, a house, or a farm, and all of these assessments are based on present value. Assuming it is intended that the burden of taxation shall be distributed upon

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1 The details of methods of appraisal will be considered later. See p 183.

all property in proportion to its present value and that all property will be valued upon the same basis and taxed at the same rate, the general property tax presents no greater evils when applied to mines than when applied to other property. The principal difficulty has been in the appraising of mines for taxation. Owing to the fact that the value of a mine changes from day to day as the quantity and the quality of the "ore in sight" change with the advance of the working faces and the removal of mineral, mine appraisal involves problems not found in the assessing of real estate of the ordinary type. These problems, however, are the same ones that mining engineers must deal with in determining the purchase price or the sale price of mining property. The changing conditions in many mines may require frequent inspection by the appraiser and the expense entailed may be entirely out of proportion to the public revenue derived. This difficulty of determining, without too great expense, a base which will result in justice to all taxpayers has been one of the most serious objections to the general property tax as applied to the taxation of mines.

Some of the state laws prescribe how property shall be assessed and the method by which the assessor shall arrive at an approved valuation. As an illustration, the laws of Pennsylvania prescribe that the assessors shall "assess, rate, and value every subject of taxation according to the actual value thereof and at such rates and prices as the same would bring at a bona-fide sale after due notice."[1] Other states have similar enactments.

Owing to the fact that sales of mines are not frequent it has become necessary for assessors to employ methods of mine valua-

1 Laws of Pennsylvania, 1841-1842.

tion that have been used under other and somewhat different circumstances. In the anthracite fields of Pennsylvania the following methods have been employed:

1. Valuation based upon sales.
2. Valuation based on foot-acres of coal remaining in the ground.
3. Valuation based on royalty rates.
4. Valuation based on capitalized estimated profits.[1]

According to the decisions of the Supreme Court of Pennsylvania, the sales-method is the only strictly legal one, but prices of coal lands have such a wide range owing to the location of the land, quality of the coal, etc., that the other methods enumerated have been used extensively by the assessors. The foot-acre method involves determining the total thickness of coal per acre remaining unmined. However, as it is practically impossible to determine the thickness and quality of coal in advance of working, the Supreme Court of Pennsylvania has declared that the foot-acre method is not a "proper measure" of the value of coal lands for the purpose of taxation.[2]

On the royalty basis the estimated tonnage of coal would be valued at the current royalty rate. To this practice the Supreme Court of Pennsylvania has objected in the following language: "Market value is its fair selling value for cash, not payable as royalty strung out through a long series of years, but payable at the time or as soon thereafter as the value could be determined. Such a method does not make allowance in undeveloped

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1 Norris, R. V. Taxation of coal lands. Proc. Amer. Min. Congress, 1913, XVI., 331.

2 229 Pa. 465.

territory for the length of time coal may lay in the ground unmined, undeveloped, and unprofitable. It is impossible to reduce to a scientific basis and to mathematical precision the elements of value entering into the present selling price of a tract of coal land. The question is not what earning power coal lands may develop in the future, but what they are actually worth in the market at present."[1]

The method of capitalizing earnings has not been used in Pennsylvania. This method has been in use many years and has been emphasized in connection with mining by Mr. H. C. Hoover. "The cardinal principle of Hoover's system of valuation is simply that the value of a mine is a capitalization of future profits. Given the margin of profit in an ore, the amount of ore, and the time required to get the profit, the value is merely that profit as it will appear in a series of dividends discounted from the future date of payment."[2]

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1 229 Pa. 470

2 Finlay, J.R. Valuation of Iron Mines. Trans. Amer. Inst. Min. Engrs., 1913, XLV., 282. In order that the relation of taxes to the exhaustion of mines may be presented as forcibly as possible, a few of the most modern ideas of mining economics are introduced as notes at this point.

A mine has been defined as "a limited deposit of valuable ore, and that to make the greatest profit from it requires that the deposit be worked out rapidly." (Hoover, H.C. Principles of mining. New York, 1909, p 42.

"The main factor in this proposal is the time value of money; not only the money tied up in the investment, but of the money to be returned by the investment. It follows that the true interest of a mine owner is not to perpetuate an income, but to complete a job; not to prolong the life of his mine, but to shorten it by exhausting all profitable ore and getting the money into something else as soon as possible. Good economy, by Hoover's theory, demands that the ore reserves be ruthlessly slashed by getting out the best ore first, in preference to poorer ore, there being no logical reason why any profit should be sacrificed in order to make a showing of stability." (Finlay, J.R. Mine valuation, Eng. & Min. Jour., 1912, XCIII., 1238.)

Stability of income during a period of years has been, how-

The principle of capitalization of earnings assumes a definite output and definite earnings from a developed tonnage in the mine. It involves practically the same investigation as is required in the physical valuation of a mine. The physical valuation of a mine requires more than a listing of lands, buildings, equipment, and tonnage and quality of material in reserve. It necessitates estimating the life of the property and the average annual earnings from the available data on the cost of production and the average price to be obtained for the product. The capitalization of these average annual earnings at an assumed rate of interest will give the present value of the mine.[1]

Both the method of physical valuation and that of capitalizing the earnings involve estimating the amount that shall be set aside for depreciation of the mine and of the equipment. These systems are well adapted to mines in which the total available tonnage of mineral may be known years in advance,- or completely when the mine is opened,- by drilling and by sampling. If no extensions of the mineral deposit are developed and no new deposits are opened, the value of the mine will decrease annually as the mineral is removed. A system of physical valuation or of capitalization of earnings allows properly for the depletion of the mineral reserves of the mine.

Assume that a particular mine, valuable for a deposit whose extent has been determined, is subject to taxation under the general property tax. During the first year the sum paid in taxes would

ever, one of the ambitions of many enterprising and conservative mine operators. The fact remains nevertheless that the exhaustion of mines proceeds rapidly and inevitably, and the community in which mines are located must recognize the fact, that public revenue from mines will continue during a comparatively short period of time.

1 Steele, H. Mine taxation, Eng. & Min. Jour., 1914, XCVII., 381.

be the largest in the history of the mine if the rate is maintained uniformly, for as the ore in the mine is worked out the tax burden on the mine would become lighter each succeeding year because the assessed value would be less. In order to raise annually the same amount by taxation, assuming that the value of other property remains constant, it would be necessary to increase the rate on all property or, by equalization, to appraise all property higher. The continued decline in the value of the mine would thus gradually shift the tax burden upon other property until finally the mine would pay no taxes whatever.

If the finances of the property be managed judiciously the assets of the company, including the present value of the mine and of the sinking fund, will be practically and continually constant. The taxes paid upon the physical valuation of the mine may grow less from year to year as the mine is being worked out, but if the entire assets of the company are subject to taxation at the site of the mine, the total sum paid in taxes by the mining company may be maintained practically constant during the life of the mine. This latter condition however seldom prevails as the funds set aside for the redemption of the capital invested are frequently reinvested outside of the mining district and are subject to taxation where they are invested. Generally, then, it may be assumed that a mine with known mineral resources, operating with an uniform annual output, will pay a constantly decreasing sum for taxes if taxed under the general property tax and appraised upon a physical basis.

The taxes paid under the general property tax by a mine whose annual output, earnings, and life can be estimated approximately may be represented as a diminishing annuity through the period of production or life of the mine.[1]

Instead of the methods of valuation or assessment previously noted, the base may be determined by state law as some multiple or fraction (1) of the gross value of the output, or (2) of the gross earnings after certain specified deductions have been made, or (3) of the net earnings. Upon the base determined in this manner, the same rate may be applied as is levied on other property. In order to determine the suitability of each type of base, it will be well to consider whether justice will be secured among mines operating upon various kinds of mineral deposits as well as among different mines operating upon the same type of deposit.

If all mines produced minerals of the same net value per ton, the system of appraising upon the market value of the output would not work inequality among the mines; but it places upon the same basis gold mines, copper mines, iron mines, oil wells, etc., whose product annually may be of equal market value but whose earning power may differ widely. Similarly, a gold mine producing a large tonnage of low value and requiring a large capital investment, may be earning annually but a small profit while the gross value of the product may be the same as that of the product of a high grade mine with small investment. The assumption that ability may be measured justly by a tax on the gross value of output is entirely unwarranted. The following statistics from the 13th Census, Volume XI., show the gross and the net value of the output of coal, precious metal, copper, iron, and lead mines and oil and gas wells of the

1 In comparing the tax burden of mines under the several systems it will be necessary to assume certain more or less theoretical conditions in order that the results under the several systems may be demonstrated. In each case the real measure of the public revenue from mines should be taken to be either the present valuation or the amount of all the taxes paid during the life of the mine.

United States:

	Gross value.	Expenses of operation	Surplus above expenses of operation.	Percent of gross
Coal, anth.	$149,180,471	$139,324,467	$9,865,004	6.6
Coal, bit.	427,962,464	395,907,026	32,055,438	7.49
Iron	106,947,082	74,071,830	32,875,252	30.74
Copper	134,616,987	107,679,312	26,937,675	20.01
Precious metal, deep	83,885,928	68,764,692	15,121,236	18.03
placer	10,237,252	6,810,482	3,426,770	33.47
Lead and zinc	31,363,094	24,453,299	6,909,795	22.03
Pet. and nat. gas	185,416,684	135,638,644	49,778,040	26.85

While the present value can not be estimated from the annual net earnings alone, yet an inspection of the table of gross value of output, operating expenses, and surplus above operating expenses shows that among the various divisions of the mineral industry there is a wide range in the ratio between gross value of product and surplus above operating expenses. In the anthracite industry the surplus is 6.61 percent of the value of the gross output; in the bituminous coal 7.49 percent; in the deep precious metal mines, 18.03 percent; in the copper, 20.01 percent; in the lead and zinc, 22.03 percent; in petroleum and natural gas wells, 26.85 percent; in iron mines, 30.74 percent; and in gold placers, 33.47 percent.

The iron mines of the United States produced ore which sold for about one-fourth as much as the bituminous coal mined, yet the surplus above operating expenses of the iron mines was practically the same as that of the bituminous coal mines. The operating expenses of the anthracite mines and of the oil and gas wells were practically the same, but the oil and gas wells had a surplus five times as great as the coal mines.

It would apparently be unfair to declare without further investigation that the value of the output of a mine should be taken as the true present value of the mine and entered upon the tax rolls together with ordinary real estate and personal property, which have been valued upon a sales basis. The present value of a mine is determined not by gross output but by net earnings throughout the life of the mine.

Between individual mines, as has been noted, there may be a great difference in operating costs. Two adjacent mines may produce the same volume of product of the same quality but the operating costs of the one may be much higher than those of the other. If the life of both mines is the same the present value of the one mine may greatly exceed the other on account of the difference in operating costs. There will thus be injustice in appraising mines simply at or in proportion to the value of the output.

The foregoing statements apply to producing mines. If a mine is not producing it would not be appraised at all on the output or on the earnings basis. A productive but non-profitable mine would be taxed on the basis of output but would be exempt if the basis is either net earnings or capitalized net earnings.

Non-productive mining property would be taxed only under the plan of physical valuation or appraisal upon the sales method. It has been claimed by some writers that the method of mine appraisal and the system of taxation may influence materially the method and rate of the development of the mine.[1] This has been discussed par-

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[1] Zander, C.M. Proc. Nat. Tax Assn, 1913, VII., 387.

ticularly in connection with the general property tax when mines are valued upon a physical basis. The objection raised is that systematic development of the mine may open up large reserves of mineral which will not be removed from the ground for many years owing to the system of mining and the existence of sufficient developed mineral to maintain the current rate of production. If these new reserves are not mined for many years they may have but little present value. Their location may not warrant opening a new mine and they may be of little value to another operator owing to the cost of the separate shafts and the equipment which separate ownership would necessitate. If the mines and the mineral deposits are appraised on a scientific basis proper allowance is usually made for such contingencies. In a number of states, however, it has been held that such tonnages should be appraised upon the basis of average sales of mineral of equal quality.[1]

The essential value to the appraiser of information regarding developed mineral reserves is that it gives him a reliable basis for estimating the life of the mine. It has been held by some engineers that a mine may have too much ore developed if proper charges for the cost of development are made against each ton. Mr. Finlay has well emphasized the relatively greater importance of a small difference in the market price per unit of the product than of a difference of a few years in the life of a mine, assuming of course that the mineral deposit is of sufficient extent and value to return the capital investment. This applies to every kind of a mine except a gold mine. He cites an important mine earning over a million dollars a year, with an assured life of ten years and a pos-

[1] Details regarding the classification of various grades of mineral reserves will be presented in Chapter VII.

sible life of twenty years. "If it lasts twenty years this mine will be worth, say $12,000,000, if it lasts only ten years it will be worth $7,500,000. If, however, the price of its ore falls eleven percent it will only be worth $7,500,000 if it lasts the full twenty years. If, on the other hand the price of ore rises eleven percent, it will be worth well over $10,000,000 with ten years life. This difference in price is no more than two men might readily disagree about; for instance, it is a difference about equal to that between 13.5 and 15 cent copper."[1]

This same idea regarding the real future value of the mineral reserves has been forcefully emphasized by mining engineers of the Pennsylvania anthracite fields.[2] Assuming that a company owns five tracts of coal land, each containing 2,000,000 tons of coal, to be worked, one tract at a time in sequence and at the rate of 100,000 tons per year, and assuming that this entire tonnage is appraised on the basis of the present royalty rate, each tract will have an assessed value of $400,000 and will pay approximately eight thousand dollars annually in taxes. On a six percent basis the present value of each of the five tracts has been calculated and will be as follows:

	Start mining in year	Complete the mining in	Present value of royalties	Less present value of taxes.	Net present value.
First	0	20	$344,100	$58,880	$285,220
Second	20	40	107,360	110,120	- 2,760
Third	40	60	33,550	126,100	- 92,550
Fourth	60	80	10,430	131,080	-120,650
Fifth	80	100	3,250	132,550	-129,300

1 Finlay, J.R. Mine Valuation. Eng. and Min. Jour., 1912, XCIII., 1238.

2 Norris, R.V. Taxation of coal lands. Proc. Amer. Mining Congress

According to these estimates the tract mined during the first twenty years will earn royalties having a present value of $344,100. If the present value of the taxes, given as $58,880, be deducted, the net present value is $285,220. Estimates show by similar calculations that the present value of the royalties earned by the second tract is $ 2,760 less than the present value of the taxes on this tract. The excess of the present value of the taxes over the present value of the royalties of the tract mined after the eightieth year is $129,300.

The principal advantages claimed for the general property tax system as applied to mines are:

1. The public revenue secured in this manner does not vary much from year to year.

2. The cost of administration is not high for most types of mining property after an adequate system of appraisal has been established.

3. By adjusting the rate, considerable elasticity is possible.

4. All classes of mining property may be reached if the system is intelligently and forcibly administered.

5. The depreciation of mining property by the exhaustion of the mineral is properly recognized.

The most important disadvantages and objections raised against the system are:

1. The appraisal for taxation requires the services of technically trained men.

2. Certain types of property are difficult to appraise.

1913, XVI., 331.

3. Certain assumptions must be made in many appraisals.

4. The expense of appraising certain types of property may be out of proportion to the value of the property and the revenue secured.

5. Mines in process of development and also unprofitable mines are taxed.

6. It may tend to hasten the mining of proven bodies of the best ore in order to shorten the period during which the ore is taxed.

7. It may restrain development.

Output taxes. It is assumed that by an output tax is meant a tax levied upon the gross value of the output at a rate different from the rate applied upon property appraised under the general property tax. Under this system the taxing district appropriates to itself a part of the gross income of a mine irrespective of the capital invested, of the operating expenses, of the net earnings, and of the life of the mine. Unless there is a graduated rate, each mine will pay taxes each year in proportion to the market value of the total product. It is evident that certain assumptions must be made by the officials who fix the rate that shall govern. This rate may be determined in several ways:

1. By requiring each industry to bear a certain proportion of the entire public expenses. In a certain state, for example, it is proposed that mining shall bear one-eighth of the tax burden. The apportioning of the tax burden among the industries and the interests of the State must be done more or less arbitrarily on the basis of capital invested, annual earnings, value of output, or some other basis upon which industries may be compared. Assuming that in

some manner the amount to be raised by taxing mines is known, and that the gross value of the annual output is known, the rate may be determined easily.

2. In the event that the tax burden has not been apportioned among the various industries, the tax rate may be fixed arbitrarily be law at a specified percentage of the gross value of the output. This procedure practically establishes a leasing system and differs from the system of taxing tonnage in principle in that the leasing rate or royalty is a percentage of the value of the output, rather than a specific amount per unit of quantity as is often the case in leasing.

3. Practically the only other method of determining the rate is by arbitrarily establishing a rate within the taxing district. This would be apt to cause inequality in the burden of taxation and the power to fix rates might be abused by local officials. As previously noted the output tax is not used extensively in the United States.[1]

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[1] This method of taxation has been used extensively in Canada. Nova Scotia leases gold lands and collects two percent of the gross value of the output. British Columbia levies two percent on all mineral products except coal. The gross value is the basis in this tax system. On producing mines yielding less than five thousand dollars a year there is granted a refund of half the tax, while placer mines yielding less than two thousand dollars are exempt entirely. Yukon Territory levies a tax of 2 1/2 percent on all gold shipped out of the Territory. The provinces of Canada have preferred taxing gross rather than net proceeds, fearing that the books would be "doctored" if the taxes were figured on the net. The mining companies would object to the inquisitorial powers of the tax assessor.

Metal mines in Mexico are taxed from 2 to 3.5 percent of the value of the output.

Under the existing output tax, mines pay a specific percentage of the gross value of the output. In 1913, the Pennsylvania Legislature enacted a law providing for a tax of two and one-half percent upon the market value of each ton of anthracite. This tax is in addition to the general property tax.[1]

In South Carolina, mines are taxed upon the gross value of the output but at the same rate that property is taxed under the general property tax.[2]

If the output is maintained uniformly throughout the life of the mine, the tax would of course be uniform. All mines, having the same output in any year, would pay the same taxes irrespective of the capital invested, the net earnings, the life of the mine, or the present value of the mine. Assuming that the rate is uniform and that the output of the mine is fairly regular from year to year, the public revenue would be uniform.

The system of taxing output is favored principally for the following reasons:

1. It is not difficult to administer if the tax law is specific.

2. It is economical as no appraisal of mines is necessary.

3. It offers little chance for tax dodging as the amount and value of the output can readily be determined.

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[1] Pennsylvania Laws of 1913, Act 374.

[2] South Carolina, Code of 1912, Title III., Chap. XIV., Par. 304.

4. Mines are taxed when they are producing, and it therefore is a convenient system for the mine operator.

5. If the tax is graduated the burden upon the poorer mines may be reduced and that upon the more profitable mines may be adjusted accordingly.

6. Taxes are collected during the entire period of production in proportion to the output and irrespective of the approach of a period of unproductiveness. Only the present is considered.

The following objections have been raised:

1. The revenue secured by such a system is uncertain in amount.

2. Generally there is no discrimination between mines as to ability, for the gross value or volume of the output is only occasionally a measure of the value of the mining property.

3. The future or life of a mine is not considered.

4. Unproductive mines or lands held for speculation are not taxed.

5. Productive mines that are unprofitable and mines being developed are taxed.

Tonnage tax. On the tonnage basis there is a levy of a specific charge against every ton or unit of mineral produced. Most of the state constitutions will not permit the collection of specific taxes. Michigan, Minnesota, Maryland, and Pennsylvania have used the system. The first tonnage tax in Michigan was authorized by an act of the legislature in 1853 and imposed a tax of one dollar a ton on copper or copper mineral obtained, ten cents a ton on iron ore, and one-half cent a ton on coal. When the tax was repealed in 1891 the rates were 75 cents a ton on copper smelted in the state, one dollar a ton on copper shipped to smelters outside the state, one cent a ton on iron ore and one-half cent on coal. From 1878 to 1896 mining companies in Minnesota paid one cent a ton tax on iron ore. This tax was levied on output irrespective of the market value of the product, the cost of production, capital invested, and the life and value of the mine. Pennsylvania coal companies were taxed upon tonnage from 1868 to 1881.[1] Maryland, like Pennsylvania, imposed a tonnage tax upon the coal carried by railroads.[2] A tonnage tax is levied upon the coal produced in Canada.[3] During recent years there has been an agitation in Michigan to impose a tonnage tax again instead of the general property tax.

A tax per unit of output is claimed by some to be a tax levied on the principle of ability. This would be true if all mines were producing at the same cost per unit of output, but this is never the case and the burden is greater upon the less profitable mines. The percentage of earnings per unit of product which goes into the taxes is therefore greater for the poorer mines than for the richer ones.

The determination of the rate, which makes the tax practically a royalty, is a problem which requires careful attention. In order to determine this rate, either there must be some effort to equalize the burden of taxation on mines as compared with other

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1 Seligman, E. R. A. Essays on taxation. 6th Ed., New York, 1910. p 179.

2 The tax law was declared unconstitutional in 1874. (State v. Cumberland & P. R. Co., 40 Md. 22.)

3 Nova Scotia collects ten cents a ton on all of the coal produced except that of one company which contracted to pay twelve cents for a period of 99 years. British Columbia levies a tax of ten cents per ton on coal and fifteen cents on coke, if produced from untaxed coal; previous to 1907 the rates were five and nine cents respectively. In Alberta and Saskatchewan there is a tax or royalty of five cents a ton on coal. (Morine, A. B. Mining laws

property, or the rate must be set arbitrarily at some figure which meets the general approval of the tax payers and of the voters of the district. Where the tonnage tax is used in Canada it is practically a royalty and approximates the royalty rate. No other taxes are paid by the mining companies on property used exclusively for mining purposes. In some provinces however the tonnage tax is levied in addition to the royalty paid to the Crown. In Michigan and Minnesota when the system was used the tonnage tax rate was much lower than the royalty rate. The title to the mineral lands is in individuals and corporations in Michigan and Minnesota, while in Canada the title to the mineral lands upon which the mines are operating is in the government.

In the accompanying table are shown the tonnage rates in Michigan and Minnesota when a tonnage tax was employed, and also the expenditure for taxes per unit of product under the general property tax.

	Tonnage tax	General property tax
<u>Michigan</u>		
Copper mines, per lb. copper in 1891	$.000375	
" " " " " " 1912		$.003 to .006
Iron mines, per ton in 1891	.01	
" " " " " 1909-1913		.1095
<u>Minnesota</u>		
Iron mines in 1896, per ton	.01	
" " " 1914, " "		.0566[1]
" " " 1914, " "		.23[2]

It has been suggested that a graduated tonnage tax be employed. But the problem of graduating the rate would be in effect

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of Canada. Chap. VIII. Toronto, 1909.)

[1] State taxes only.

[2] Includes all taxes.

appraising the product as is now done in a number of states employing the general property tax.

The advantages claimed for the tonnage tax are briefly as follows:

1. Simplicity of administration and economy.

2. Taxpayers know definitely in advance what taxes must be paid.

3. Only productive mines and mineral lands are taxed.

4. The state may secure a large share of the profits secured from mineral deposits.[1]

It is urged that the system is not a good one because:

1. Volume of output is not often a measure of ability as mines producing a large tonnage may have the smallest profit per ton; conversely, mines having a small output may have a large profit per ton.

2. A fixed rate per ton may make mining unprofitable if the market price of the mineral product declines.

3. There is no tax upon non-producing mines and mineral lands held for speculative purposes.

4. The public revenue from such a tax is uncertain as it will vary directly with the tonnage, which may change from year to year.

Earnings tax. When a tax is levied on earnings it becomes necessary for the legislative body or for tax officials to determine what deductions from the value of the output shall be per-

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[1] The Minnesota Tax Commission in 1908 recommended that a tonnage tax be employed instead of the general property tax. "Considerations of justice and sound fiscal policy make it desirable; in no other feasible way can the heritage and the diminishing value elements involved be recognized." (First Bien. Report, Minn. Tax Com., 1908. p 224.) By the "heritage element is meant the state's right to a share of the value of the earth's possessions found within the borders of the state." (*Ibid.*, p 145.)

mitted in calculating the net earnings. Unless stated otherwise, the term "earnings" will be understood to mean net earnings.

A number of the states employ a tax on earnings, the state laws attempting to define earnings so that the assessor shall have no difficulty in verifying the data filed. In most of the states in which a net earnings tax is used there has been considerable discussion in regard to the deductions which shall be allowed. In mine accounting, as will be noted later, it is now the customary practice with some of the best companies to charge all ordinary development to operating expenses. The term "permanent improvement" includes very little about a mine operated on this plan. Everything is immediately charged to expense unless the item is properly one which represents an unusual improvement, the cost of which may be distributed over a period of years.[1]

However the net earnings tax as employed in the several states is practically a general property tax, for the mine is assessed at its net earnings or the full amount of the net earnings is arbitrarily taken to be the actual value of the mine and on this base the rate of the general property tax is applied. A true net earnings tax is rather a tax which like an income tax takes annually

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[1] A notable example of this type of improvement is the stripping of ore in an open-pit mine. Most of the "dead expense" is incurred at the beginning or in the early stages of the operations. When the waste material overlying the ore-body has been removed, the deadwork, corresponding more or less to the sinking of a shaft, is completed and every ton of ore subsequently mined should be charged with a portion of this preliminary expense. In the case of several large open-pit mines, which are still stripping waste, the claim has been made that the total cost of stripping should be deducted from the earnings during the year in which the stripping is done, and that taxes should be figured on the net above this development expense. On the books of the company however this cost of stripping is carried as a suspense account and against each ton of ore as it is mined, there is charged its share of the entire development expense. The question at issue seems to be whether the state shall collect a larger share now or defer its claim until later. It is not a matter

a fixed percentage of the income or earnings. Levying a tax on net earnings at the general property tax rate is in effect actually appraising the mine to be worth only one year's earnings. The fallacy of this plan in its general application is evident.

If the earnings of a mine are maintained uniform throughout its life, the annual sum of taxes paid will be uniform, during the years immediately prior to the exhaustion of the mine as well as in the first years of production. The tax burden is therefore distributed throughout the life of the mine.

The objections to the net earnings tax that have been presented are notably as follows:

1. The difficulty of determining what deductions shall be made from the gross earnings.

2. The necessity for more or less inquisitorial inspection of the accounts of the mine.

3. The fact that there may be little relation between the capital paid in and the earnings of a company.

4. Non-productive and unprofitable mines pay no tax whatever.

5. From the view point of the tax officials, there is the objection that the state revenue derived from mines in this way would not be nearly as uniform from year to year as when the general property tax is used, unless the earnings of the mines are uniform.

6. The rate would have to be high in order to collect from mines the same proportion of the earnings as is collected from real

of tax-dodging but rather a postponement of taxes. The extent and the quality of the ore-body are assumed; the variables that might later affect the earnings, and therefore the taxes, are the future cost of mining and the market price of the metal produced.

property under the general property tax.

In support of the net earnings tax, the following advantages may be noted:

1. As a rule, the taxing unit will secure more revenue from the mines, if the entire life of each mine is considered, than if mines are taxed under the general property tax. The assumption is made that under both systems, the same taxes are collected the first year.

2. If depreciation has been properly provided for, and the earnings are uniform, the amount of taxes paid each year during the life of the mine will be uniform, although the value of the mine may be declining at a regular rate.

3. Physical valuation or appraisal is not necessary.

4. There is less expense for administration.

5. Development of mines is encouraged as the unprofitable and unproductive mines are exempt.

From the viewpoint of the mine operator, this system is desirable for the following reason:

6. If the rate is maintained uniform, the taxes will be heaviest when the mine is most profitable and there is no burden during the development period.[1]

Income tax. As previously noted, the Federal Government

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[1] The system of mine taxation inaugurated by the Province of Ontario by the Act of 1907 is a good example of the net profits or earnings tax. "All mines which yield an annual profit above the exempted amount of ten thousand dollars pay a flat rate of three percent on such excess. In ascertaining the profits, the gross receipts, or value at the pit mouth, are taken and from this sum is deducted the cost of transportation of the output sold, if borne by the shipper, and actual working expenses including mine wages and salaries, cost of fuel, explosives, power, insurance, and sinking new shafts, and an allowance for depreciation of the

and a few of the states levy a tax upon the income of individuals and of corporations. The essential difference between the so-called "net earnings" tax and an income tax is that every state employing the former levies the tax at the general property tax rate thus practically valuing a mine at one year's earnings, while under the income tax there is a fixed or graduated rate specified which applies only to income. As will be noted in Chapter IX, it has been urged that mines should be taxed upon income and at a rate graduated according to the earnings upon paid-in capital. This proposal contemplates also a definite consideration of the deferment of dividends until after a mine is developed.

The advantages claimed for an income tax as applied to mines are the same ones that apply to income taxation in general, but the following have a more specific application:

1. Income of mines is the true and only measure of ability.

2. The administrative problems have been simplified for the states by the enactment of the federal income tax law.

3. Mines would be taxed when productive, therefore the tax is convenient as compared with the general property tax.

4. There is no pressure or inducement tending to cause careless and wasteful mining.

5. Exploration and development are not impeded.

The objections raised against an income tax or an ad valorem tax based on capitalization of net income have been summarized as follows:

"1. American property taxes are in general so high and take so

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plant,- not of the mine. The tax levied in any year is based upon the profits of the preceding year. (Ch. 9, 7 Edw. VII.)

large a part of the annual income that if converted into terms of income taxation they would appear excessive. Few legislatures could be persuaded to impose an income tax on mines equal to the share of the net income regularly taken from farms, railroads, and similar enterprises.

2. The property tax is imposed from year to year on idle property or property which for speculative purposes is held out of production, whereas the income tax applies only when the property is worked.

3. With the income tax, uncertainty and possible inadequacy of the tax are likely to result unless the minimum output is regulated by the state."[1]

Equated income tax. Owing to the difficulty of appraising annually mines having a short life and those having little ore in sight, it has been proposed that typical mines be appraised carefully and the net earnings or income determined for the entire life of the mine; that the ratio between earnings and property value be determined; and that a factor be calculated so that the general property tax rate may be applied to earnings or income and the same tax burden be thereby applied to properties regularly appraised and to those whose income alone is known.[2] This would mean that if the general property tax rate is 3 percent and the factor is determined to be 2.4, then the rate applied to incomes of mines would be 7.2 percent.

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1 Report of the Committee on Taxation of Mines and Mineral Lands. Proc. Nat. Tax Assn., 1913, VII., 390.

2 Uglow, W.L. Bull. XLI., Wis. Geol. and Nat. Hist. Survey, 1914, p 59.

The advantages claimed for this system of equating income with the value of property are as follows:

1. Ease of administration.

2. Mines are taxed upon actual and not prospective earnings.

3. Taxation according to ability is approximated.

4. Royalties are taxed at the source.

5. There is no effect on conservation of mineral resources and no penalty on development.

The disadvantages are:

1. The system is based upon the average life for a district or group of mines, and occasionally an individual mine may suffer or may escape its just share of taxes.

2. The revenue derived will fluctuate with the earnings.

3. Unprofitable and unproductive mines are not taxed. Unprofitable mines on a royalty basis are taxed.

4. Land held for speculative purposes is not taxed.[1]

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[1] *Ibid.*, 64.

CHAPTER VII.

Problems of Administration

The administrative problems of mine taxation differ in a number of points from those of taxation of other kinds of property. Particular attention may be directed to the problem of appraisal of mineral properties, to mine accounting and depreciation of mines, and to the cost of administration.

Appraisal of Mineral Properties for Taxation. As most of the states employ the general property tax and a number of the others tax the property of non-producing mines, the appraisal of mineral properties for taxation is a problem practically of national interest. In but few states, however, has the subject received the serious attention which its importance warrants. This may be due to several causes: (1) The failure to develop or apply a scientific system of appraisal of property in general throughout most of the states; (2) constitutional limitations upon the methods of assessment; and (3) the opposition of the various interests involved.

In Minnesota, Michigan, Wisconsin, and Pennsylvania considerable attention has been given to the problem and in the first three there have been appraisals made which have gone a long way toward solving the problem.

In discussing the appraisal of mineral lands, Mr. H. M. Chance suggested that the purpose for which an appraisal of mineral property is desired will determine the choice of method or combination of methods to be used. Among the methods which have been applied are the following:[1]

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[1] Chance, H.M. Appraisal of the value of mineral lands. Trans. Amer. Inst. Min. Engrs., 1904, XXXV., 347.

1. The value may be determined by adding to the cost of the land the cost of the improvements, and a reasonable remuneration to the party which has successfully developed the property.

2. After the common practice of real-estate appraisers, the value may be determined by the prices at which property of a similar character in the immediate neighborhood has recently been sold.

3. A method elaborated by Mr. J. S. Harris several years ago for the purpose of appraising the value of coal-lands owned by the Philadelphia and Reading Coal and Iron Company has been adopted by many experts for general purposes. By this method the total workable coal in the ground is first determined, and valued at a certain sum per ton, this estimate being based either upon what the coal would produce if leased upon a royalty, or upon the profits of mining it. Using as a basis the rate of increase in production, as shown by past experience, the probable yearly increase of output is calculated, and for these figures the probable revenue is calculated for each year of the period during which the assumed output can be maintained, or until all the coal is mined. Then the probable future earnings of the land, either by royalty or through production, are capitalized at their present money value, by the usual formulas for deferred payments, at a certain assumed rate of discount. The present money-value of coal-land depends largely upon the time at which development is to be commenced, the time elapsing before maximum output is attained, and the time to be occupied in exhausting the tract,- the present money-value decreasing rapidly as any of these variables is increased.

4. The appraised value of the property may be taken as the capitalized value of the yearly earnings which it is estimated will

result from the operation of the property at a certain yearly output maintained for a fixed term of years at an average profit per ton extending throughout the whole period, and not providing for any increased output beyond what may be already in sight.

5. The value may be based upon the actual net earnings allowing for such increases and improvements as seem warranted by industrial conditions, treating the property as a business investment and worth the price which the earnings justify, provided it be not greatly in excess of the appraised value of the land, plant, and improvements as reached by other methods.[1]

The fifth method is now generally employed in valuing mining properties by representative engineers.[2]

In appraising mining property, other than improvements and broken ore or stored mineral product, it has been customary for tax officials to classify the various kinds of property as follows: productive mines, non-productive mines, mineral reserves, unexplored mineral lands, mining rights, and leaseholds. Many of the representative and the most important points in the appraisal of mineral

[1] In commenting on these methods, Mr. Chance says: "The first method may be dismissed without serious consideration, because it is impossible to determine what would constitute a reasonable profit to the operator developing a tract of land, and, further, because this method ignores the value of the business that the operator has established and the enhancement of land-values due to the development of the property.

The second method is discarded for similar reasons, also because it fails to recognize the fact that the price paid for coal property is a measure only of the value placed upon it by the vendor, who, if not in a position to operate it, may be willing to part with it for much less than its real value. In buying from original owners coal operators rarely pay full prices, but almost invariably what they believe to be a small fractional part of the real value.

The third method is most valuable for the purpose for which it is used by Mr. Harris, namely, as a basis upon which reorganizations may be planned, and a new company financed. It may not be adapted for general use, because it is cumbersome, and also because it does not include allowances for the value of established trade and conproperties for the purpose of taxation may be noted in connection with the methods of valuing productive or developed mines which methods will be discussed first. As suggested by Mc Hoover,[1] the field of valuation of productive mineral properties may well be treated in sections. In the following discussions an effort has been made to present data and methods in the following order: (a) copper, lead, zinc, and precious metal mines; (b) iron mines; (c) coal mines; (d) gold placers; (e) petroleum and natural gas wells; and (f) mineral rights.

(a) Copper, lead, zinc, and precious metal mines. It has been suggested that both positive and speculative factors must be considered in determining the value of a metal mine. The positive value or character of the ore as it is known to exist in the ground may be determined by an examination and the sampling of the mine and the metallurgical testing of the ore. The quantity of mineral product actually available must be determined by measurements made upon the blocks of ore exposed. The mining engineer in making an examination of a mine may find it necessary to cut samples from the

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nections.

The fourth method is useful in a majority of cases as corroborative of valuations reached by the fifth method."

2 Rickard, T.A. Sampling and estimation of ore in a mine. New York, 1904. Economics of mining. N.Y., 1905.
Hoover, H. C. Principles of mining. New York, 1909.
Finlay, J. R. Cost of mining. New York, 1909.
Burnham, M.H. Modern mine valuation. London, 1912.
Herzig, C. S. Mine sampling and valuing. San Francisco, 1912.
Eckel, E. C. Iron ores, their occurrence, valuation and control. New York, 1914.

1 Hoover, H. C. Principles of mining, p 1.

solid ore in place every five or ten feet along the exposed faces of every block of ore. This work of taking the samples together with the work of surveying the mine in order to determine the location of the points at which samples were taken and the volume of blocks sampled, followed by the task of assaying each sample may require the full time of several trained men for many days and may cost several thousand dollars for each large mine examined. It cost $7,000 to sample one well-known mine, and it cost $12,000 to do the same work in a neighboring property. This does not include the fee of the engineer in either instance.[1] In appraising an operating mine for taxation it would usually be unnecessary for the mine valuer to do more than to check and verify the sampling which had previously been done. It has been held by some opponents of the ad valorem system of mine taxation that the expense even of checking the sampling of large precious metal mines will make the system prohibitive in those states in which there are many mines of this character.

There is also to be considered the question of developing, equipping, and operating the mine which involves the variable of technical skill and managerial ability. And, finally, there are the speculative elements of continuity and character of the orebody beyond the ore visible at the time of examination and the possibility of a change in the market price of the product for all except gold mines.[2]

Speculative features have entered in various ways into the appraisal of mines for taxation. In some states it has been

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1 Rickard, T.A. Sampling and estimation of ore in a mine, p 14.

2 Hoover, Principles of mining, p 1.

urged that the interest rate used in valuing a mine should be as high as the rate that investors normally expect to receive from mining investments; others favor the practice of making percentage deductions for various factors of risk.[1]

1. "The risk of continuity in metal contents beyond sampled faces.

2. The risk of continuity in volume through the blocks of ore estimated.

3. The risk of successful metallurgical treatment (due to changing character of the ore).

4. The risk of metal prices, in all but gold.

5. The risk of properly estimating costs.

6. The risk of the extension of the ore beyond exposures.

7. The risk of management."[2]

It is to be assumed that in valuing mines for taxation the risk factor will be given the same weight as it is usually given by engineers in appraising mines for sale or purchase.

The basic factors in the valuation of a mine are (1) average market prices for the product; (2) average costs of mining and marketing the product; (3) the life of the mines; and (4) the interest and discount rate.[3]

With these data determined or given, the present worth of a mine producing annually a fixed tonnage of a uniform quality may be readily calculated from the following formula:[4]

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1 See p 226 .

2 Hoover, p 182. To these risks may properly be added the risk of increased cost of mining due to changes in the labor scale, prices of supplies, etc.

3 Finlay, J.R. Cost of mining, p 5.

4 Ibid., p.16, See also Hoskold, H.D. Valuation of mines of definite

$$\text{Present value} = \frac{100\ p\ A}{x\ z}\ \frac{(z\ S\qquad)}{(z\ S\ +\ 100)}$$

A = number of tons in the deposit; x = number of years required to mine this tonnage; p = profit per ton; z = rate of return expected; d = rate + 1 at which the sinking-fund can safely be invested. $S = \frac{d\ (d^x - 1}{d\ - 1}$

With certain types of mines, as has been noted, the sampling and estimation of the ore-body may mean a difficult and expensive task which would be practically out of the question for the appraiser to undertake annually for each mine in the tax district. In the two types of metal mines, other than iron, which have been appraised on an ad valorem basis by state appraisers, no attempt has been made to sample the mines. In the Michigan native copper mines, sampling would be impractical. In the Wisconsin zinc district it has been customary to estimate ore reserves from platted drill holes, put down in exploring the deposit. Experienced mine operators having the records of the holes can estimate very closely the value of a deposit and the same data are available to the appraiser for the tax commission.[1]

The problem then is rather one of verifying the data available, of checking tonnages, of verifying sales, prices, and costs, and of estimating profits. With a known life of the mine, the present worth may easily be calculated.

As will be discussed later in considering the experience of the Wisconsin appraiser in the Platteville zinc district, the

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average income. Trans., Amer. Inst. Min. Engrs., 1902, XXXIII., 777.

1 Uglow, W.L. Methods of mine valuation and assessment. Bull. XLI., Wis. Geol. and Nat, Hist. Survey, 1914.

problem of the short-lived mine or the mine whose development is generally not sufficient to warrant an estimation of life, many factors must be considered,- and these can be estimated only by the experienced appraiser who is familiar with the geology of the district. No mining state has, as yet, attempted an appraisal of precious metal mines, or mines carrying important quantities of precious metals as by-products.[1]

(b) Iron mines. The Minnesota, the Michigan, and the Wisconsin Tax Commissions have had considerable experience in appraising iron mines. The important features of the work of each commission will be presented later.[2]

The valuation of iron mines rests fundamentally upon the same basal factors as the valuation of gold, silver, copper, zinc, and lead mines,- namely, (1) average costs per unit of product, (2) average prices per unit of product, (3) average number of units produced annually, (4) life of the mine, and (5) rates of interest and discount. The economic conditions controlling the iron industry, the regularity and extent of iron-ore deposits, and the wider distribution of iron-ore have caused many appraisers to consider iron-ore deposits separately from those ores which carry commercial quantities of the precious metals. Eckel in discussing the valuation of iron-ore properties suggests[3] that for such properties there may be three different bases on which the valuation may be placed:

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[1] It is expected that the Arizona Tax Commission which has inaugurated a system of appraising the mines of the State on the ad valorem basis, will formulate a method adapted to the conditions in Arizona.

[2] See Minnesota, p209; Michigan, p219; Wisconsin, p230.

[3] Eckel, E.C. Iron ores. The basal factors in ore valuation, p109.

(1) Capitalization of smelting profits, (2) capitalization of royalties or mining profits, and (3) market or replacement valuation. In capitalizing the smelting profits, the same line of thought is followed as is followed in gold mining, namely, that the treatment and reduction of ores is incidental to mining and therefore, for example, the profit of the reduction of the gold ores is simply a part of the profits of gold mining, defining mining in a comprehensive way. Similarly, iron smelting may be considered as a branch of the iron mining business. Logically, iron smelting stands in the same relation to iron mining as gold milling does to gold mining,- but the trade customs have been different. The "method of valuation which has been here suggested[1] is clearly justifiable,[2] but has not been adopted in the past".

In summarizing the problems of iron-ore property valuation, Eckel emphasizes[3] the importance of finding a market for the iron-ore of the particular chemical composition of the deposit to be valued. In a going concern the appraiser would have available the accounts of the company showing the actual prices received for ores and could estimate the value of the deposit or blocks of the deposit upon these records of sales.[4]

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1 Ibid., p 110.

2 It is interesting to note the complications that such a system of valuation might provoke if the State of Minnesota should attempt to tax iron-ore on the basis of the profits earned by the iron and steel plants located at Pittsburgh.

3 Ibid., p 113.

4 The question of composition of ores, marketibility, etc., is of importance, however, in determining the prospective value of unproductive mines and mineral lands containing known tonnages of sampled ore.

The interest and discount rate is of importance particularly in valuing deposits of iron ore or other minerals of such extent that the mines operating upon them will have a comparatively long life. It has been suggested that some mines may have too much "ore in sight". This statement may apply to either of two conditions. The company may have bought lands or mineral rights in order to secure assured reserves, and the price paid for these reserves may at compound interest amount to so great a sum that by the time the ore is mined, no profit will result from the investment. Or, the company, upon lands previously owned, may make expenditures for driving development openings and thereby may open additional reserves; but the expenditure upon these new openings, when considered as an investment and charged with interest compounded, may amount to so great a sum by the time the ore is mined that no profit may result. It is evident therefore that the interest and discount rates, and the carrying charge are important in estimating the present worth of extensive mineral deposits.

The determination of the carrying charge upon ore or other mineral in the ground has aroused much discussion particularly in the iron-mining and the coal-mining states. "The selling value of a natural agent - be it agricultural, an urban site, a developed mine - is a capitalization, at the current rate of interest, of the fixed income which accrues to its owner. It varies, therefore, inversely to the rate of interest."[1] In the Finlay appraisal of the iron mines of Michigan the rates used were six per cent on the investment and four percent on the sinking-fund. In the so-called Hill ore lease four percent was taken as a basis for

[1] Taussig, Principles of economics, II., 97.

calculation. "Taking everything into consideration, it does not seem justifiable, in considering long-time ore calculations, to assume a carrying rate of less than six percent. It does not seem probable that under any ordinary conditions in the American money market, any steel company whatever could secure money at a lower rate if ore reserves were the only security offered.[1] All things considered, we are not likely to under-estimate the matter much by assuming six percent as the minimum carrying charge or discount rate. Even at this rate the discounting effect is more than might casually be expected. If ore is being mined on a royalty basis of twenty-five cents per ton, the royalties for the tenth year of the lease can be given a present value of only fourteen cents per ton; while those to be earned in the fortieth year have a value now of only two and one-half cents a ton. In other words, a property which can not be worked out in forty or fifty years does not derive much additional present value from the ore still in the ground at the end of that time."[2]

In commenting upon the method of valuation of iron mines used by Mr. J. R. Finlay, the importance of the assumption of the interest and discount rate was discussed at length by Mr. E. E. White.[3] He cited various authorities to show that in addition to a fund for the redemption of capital, the conservative investor generally expects a return of not less than ten percent upon mining investments. He suggested that Mr.Finlay's method of valuing the

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1 In 1907 the Spanish-American Iron Company attempted to make a loan by a series of 6 percent bonds, secured by Cuban iron-ore deposits. These bonds were sold at 98 1/2. Eckel, p 177.

2 Eckel, p 177.

3 Trans., Amer. Inst. Min. Engrs., 1913, XLV., 304.

Lake Superior iron mines might be successfully used if the five factors should be determined as follows:

"1. The average cost of production at lower lake ports for five years, plus or minus the difference in cost per ton of taxes due to such revaluation.

2. The estimated ore reserves; ore based on diamond drilling to be estimated very conservatively.

3. The average production per year for the last five years, if the mine has been equipped to produce actively for that length of time; otherwise, for the number of years during which it has been so equipped.

4. The average selling price at lower lake ports for 18 years.

5. The present value of a $1 per year dividend based upon a 10 percent return on the investment and capital returned in ten years of operation by investment of an annual sum at 3 percent. This would mean 12 to 15 years from the beginning of development before capital would be replaced."

(c) Coal mines and lands. The valuation of coal mines has received much attention from mining engineers, but the appraisal of coal mines for the purpose of taxation has not received the attention of taxing officials to the same extent that metal mines have in the Lake Superior region. However, the coal mines of Michigan were appraised for taxation in 1911 and the assessment of anthracite mines in Pennsylvania and of bituminous coal mines in Virginia and West Virginia has provoked much discussion and some litigation. In most of these coal mining districts the problem of coal mine valuation has been almost inseparably identified with the valuation of lands and leaseholds.

A survey of the field of valuation as applied to coal lands has been made by the United States Geological Survey in connection with the examination and classification of the mineral lands of the public domain. The Geological Survey investigated the royalty value, the sale price, the bonding value, and the assessed value of coal lands in the United States in 1910.[1] It was found that county assessors commonly assess only developed coal lands and these upon the coal actually being worked. Where the coal land is most valuable the method of assessment has usually been worked out with much care.

The following table[2] gives data from selected points, including the range of assessment of coal in developed properties (exclusive of improvements) down to assessments on undeveloped lands off railroads and of small or unknown value, the ratio between the assessed and the assumed real value, and the assumed real value as estimated from the assessments.

Assessment value of coal lands per acre.

Eastern Coal Fields.

Location	Range of assessments.	Ratio assessed to assumed value.	Assumed value.
Pennsylvania:			
Luzerne County	$8,000	8/10	$10,000
Clearfield County	2-50	1/4	8-200
Cambria County	10-50	1/3	30-150
Fayette County	400-600		
Westmoreland County	430-680		
Ohio:			
Belmont County	6-30		
West Virginia:			
Kanawha County	20-100	1/3	60-300
Raleigh County	200		
McDowell County	250		
Kentucky:			
Henderson County	10-12		
Tennessee:			
Caliborne County	25-40		65-100
Alabama:			
St. Clair County	1-6		
Indiana:			
Sullivan County	15		20-110
Greene County	15-35		
Warrick County	5-6		

1 Ashley, G.A. The valuation of public coal lands. Bull. 424, U.S. Geol. Survey, 1910.

2 Ibid., p 33.

Location.	Average assessments	Range of assessments.	Ratio assessed to assumed value.	Assumed value.
Illinois:				
Grundy County		14-37	1/3	40-110
Bureau County		16		
St. Clair County		25-50		
Franklin County		15-35		25-50
Western Coal Fields.				
Colorado:				
Boulder County	$68.00		1/3	$204
Delta County	20.00	$20-50	1/3	60-150
El Paso County	51.66		1/3	155
Fremont County	29.46	10-40	1/3	30-120
Garfield County	37.40	10-50	1/3	30-150
Gunnison County	33.00	15-80	1/3	45-210
Huerfano County	28.00	2-70	1/3	6-210
Las Animas County	13.50	5-75	1/2	10-150
Mesa County	20.00		1/3	60
Pitkin County	16.34	4.50-30	1/3	13.50-90
Weld County	25.97			
Utah:				
Emery County		10		25

In 1914, Mr. H. M. Chance reported[1] the following table of county assessments of coal lands:

[1] Chance, H.M. Appraisal of coal land for taxation. Bull. 91, Amer. Inst. Min. Engrs., July, 1914, p 1466.

County Assessments

State		Highest Assessed Value of Coal, Not Including Surface, per Acre.	Lowest Assessed Value of Coal, Not Including Surface, per Acre.
Alabama	"Supposed to be assessed at 60 percent but rarely is assessed at more than 25 percent of value."	$1.00 to $40.00	$0.12 to $3.00
Arkansas	"Supposed to be assessed at 50 percent, or less, of value at voluntary sale."	5.00	2.50
Colorado	"Depends on accessibility to railroads."	60.00	25.00
Illinois	"Usually at about 20 percent of voluntary sale value."	75.00	2.00
Iowa	"Undeveloped lands not assessed as coal land."	10.00 to 30.00	6.00 to 25.00
Kansas	"Supposed to be at its market value."	20.00 to 60.00	5.00 to 10.00
Kentucky	"Assessors often adopt statement of owners as to value." (Data not complete.)	2.00 to 15.00	1.00 to 4.00
Ohio	"Attempt to approximate value." "More guess-work than anything else." "Actual values tried to be ascertained."	20.00 to 80.00	10.00 to 20.00
Pennsylvania	Methods vary greatly (Bituminous region only.)	10.00 to 900.00	5.00 to 50.00
Tennessee	Data incomplete	20.00	3.00
Utah	Data incomplete	20.00	10.00
Virginia	At fair market value as per Act of March 7th, 1912.	100.00 to 500.00	1.00 to 8.00
West Virginia	"Supposed to be at voluntary sale value."	6.00 to 180.00	3.00 to 15.00
Wyoming	"On net value of output." (Data incomplete.)	20.00 to 30.00	20.00

The investigation made by Mr. Chance disclosed the fact that few of the states have adopted uniform methods applying to all parts of the state. In general, four methods of assessment of coal lands have been attempted or suggested.[1]

First: Valuations based on actual sales.
Second: Valuations based on foot-acres of coal remaining in the ground or remaining available.
Third: Valuations based on royalty values.
Fourth: Valuations based on capitalized estimated profits.[2]

The application of these methods in Pennsylvania will be considered later.[3]

In discussing these methods in a general way, Mr. Norris concludes that "none of the suggested or attempted methods has resulted, or can result, in an equitable valuation, fair and just to both the public and the owners of coal land."[4] On the other hand, Mr. Chance in appraising the coal mines of Michigan for taxation in 1911 used as a "logical method" the following procedure: The present value of the proved and developed coal tonnage was determined, using as a basis an assumed present money value of a ton of coal in the ground existing under average mining conditions. The present value of undeveloped coal was assumed to be a definite percentage of the present value of developed coal. Various factors were adopted by which the assumed base was reduced in order to allow for local irregularities, risks, etc. A valuation for a property was thus determined, it being practically a capitalization of estimated profits during the life of the mine.

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1 Norris, R.V. Appraisal of coal land for taxation. Bull. 100, Amer. Inst. Min. Engrs., April, 1915, p 868.

2 These same methods have been used in principle at least in some of the metal mining districts.

3 p 241.

4 Bull. 100, Amer. Inst. Min. Engrs., p 873.

As previously noted the United States Geological Survey has placed a valuation upon the coal lands of the public domain.[1] Various factors have been considered and definite rules have been formulated from which may be determined the price to be charged for lands containing coal of a certain quality and thickness. Deductions are allowed according to variations in thickness, inclination of bed, depth below the surface, and proximity to railroads.[2]

(d) Gold placers. Only a few states have important placer deposits and little literature is available to show the actual methods employed by assessors in appraising mines operating upon such deposits. The methods of valuing alluvial gold deposits employed by mining engineers have been described in various works upon gold dredging and placer mining and in numerous articles in

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1 Bull. 537, U. S. Geological Survey, 1913, p 96.

2 In addition to the citations previously made other important references upon this phase of valuation of mineral properties are listed in the accompanying foot-note.

Ashley, G. H. Public coal lands and taxation. Coal Age, 1913, IV., 783.

Chance, H. M. Appraisement of Michigan coal lands. Coal Age, 1912, II, 13, 51.

Crane, W. R. Coal-land valuation as a basis for taxation. Coal Age, 1914, V., 1055. See also Proc. Coal Mining Inst. of America.

Griffith, W. Assessing and taxing coal in the ground. Coll. Engr., 1913, XXXIII., 669.

Hoskold, H.D. Notes upon redemption of capital invested in collieries. Trans. Fed. Inst. Min. Engrs., 1891, III., 735.

Humphreys-Davies Colliery assessments and the rating of mining machinery. Trans. Fed. Inst. Min. Engrs., 1891, III., 773.

Smith, A. The rating of coal mines. Trans. Inst. Min. Engrs., 1899-1900, XVIII., 171, 228.

Smith, J.B. On colliery depreciation. Trans. Fed. Inst. Min. Engrs., 1890, II., 211.

the technical press.[1]

The valuation of gold placers which have been drilled thoroughly may be made upon the same basis as the valuation of other types of mineral properties, notably by determining the present value of the profits which may be expected from working the deposit. Experienced operators have had opportunity to compare the recovery of gold with the reports of drillers and various factors have been determined for different kinds of dredging ground, as, for example, one factor for compact gravel, and others for medium gravel, for loose gravel, and for loose gravel and sand with much water. Factors may be applied for the gross amount of gold recoverable under general working conditions, although many of the largest operators report that it is impossible to give any fixed percentage to offset the various conditions of operation.[2] "The life of dredging propo-

[1] Aubury, Lewis E. Gold dredging in California. Bull. 36, 1908. Bull. 57, Chap. II., 1910, California State Mining Bureau.

Earl, T.C. Gold dredging. London, 1913.

Hodgson, J. E. The dredging of gold placers. London, 1911.

Purington, C.W. The sampling of placer deposits, in Mine sampling and valuing. San Francisco, 1914.

Weatherbee, D. Dredging gold in California. San Francisco, 1907.

Decoto, L. A. Valuation of dredging ground. Min. and Sci. Press, 1914, CVIII., 773.

Graves, T.A. Examination of placer ground. Min. and Sci. Press, 1914, CIX., 991.

Herrick, H.N. Valuing dredging ground. Min. and Sci. Press, 1913, CVII., 1061.

Herzig, C.S. Valuing of dredging ground. Min. and Sci. Press, 1914, CIX., 563.

Jennings, R.C. Valuing placer ground. Min. and Sci. Press, 1914, CIX., 527.

Steel, D. Valuing placer ground. Min. and Sci. Press, 1914, CIX., 845.

[2] Bull. 57, California State Mining Bureau, p 36.

sitions differs from that of vein mines in that dredging propositions can be closely figured, and, unlike the latter industry where the profit in sight is figured as a guarantee for the return of only a part of the capital invested, the redemption of the cost of the property and equipment must be allowed for during the life in sight, which is usually determined by having the dredge equipment of sufficient capacity to turn over the ground in ten years, as the life of a dredge with a wooden hull is generally figured at this length of time."[1]

The rate of interest, after proper allowance for the sinking-fund has been made, is generally taken at a minimum of ten per cent. In California mines are appraised on an ad valorem basis.

(e) Petroleum and natural gas wells. The appraisal of oil and gas wells has offered many difficulties to assessors in the states appraising and taxing mineral properties upon an ad valorem basis.

The important oil producing states in 1912 and 1913 were Oklahoma, California, Illinois, West Virginia, Pennsylvania, Ohio, Texas, Louisiana, and Indiana. The states leading in the production of natural gas were West Virginia, Pennsylvania, Ohio, Oklahoma, Kansas, Louisiana, and California. With the exception of Oklahoma all of these states tax mines and oil and gas wells under the general property tax. Except for the reports published by the Tax Commission of West Virginia there is available but little data upon the experience of the officers of oil and gas states in taxing oil and gas wells. The logical and practically the only method of valuing an oil and gas well or property is upon produc-

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[1] Ibid., p 36.

tion and profits. Definite instructions on valuation of oil wells are given to the local assessors in but few states.

It has been said that few of the oil-producers appreciate what the real cost of production is.[1] Obviously, it is essential that producers should know what is really income if property is to be appraised on the basis of earnings and if Federal taxes are to be collected on income.

In discussing "depreciation as applied to oil properties", Mr. P. W. Henry has presented valuable data on the cost of production and has demonstrated what items may properly be taken into account in estimating the depreciation of oil properties.[2]

Data used in the study of the subject were based upon estimates of the United States Geological Survey for the State of California as a whole. Considering the constant annual increase in production and the danger from water intrusion, it seemed prudent to adopt a life of 25 years for the field. A depreciation rate of 4 percent per annum was used for the oil lands. For individual wells the life may be shorter and the rate would necessarily be correspondingly higher. An average life of all wells drilled, including dry wells, is suggested as 10 years. In case the land should be valuable for other purposes after the oil has been exhausted, a depreciation rate corresponding to the actual depreciation due to the exhausting of the oil should be used. The depreciation rate on equipment is figured at 7 percent. Summing up the depreciation charges which were calculated for particular operations, Mr. Henry

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1 Requa, M.L. Present conditions in the California oil-fields. Trans., Amer. Inst. Min. Engrs., 1911, XLIII., 841.

2 Henry, P.W. Depreciation as applied to oil properties. Bull. Amer. Inst. Min. Engrs., 1915, No. 97, p 31.

concludes that the following charges are appropriate:

	Per barrel
Depreciation of oil lands (royalty)	$0.055 to $0.110
Depreciation on field equipment	$0.029 to $0.052
Depreciation on wells and appurtenances	$0.052 to $0.071
Total depreciation	$0.136 to $0.233

These figures were presented with the idea, not of supplying absolute data that could be applied in general, but rather in order to show what effect a "proper charge for depreciation has upon the cost of producing oil in a state where, during the past few years, prices at the well have ranged from $.30 to $.85 per barrel."[1]

In addition to this charge for depreciation, allowance must also be made for renewals and repairs. The actual cost of California oil is shown by the following statement:

	Per barrel
Pumping	$0.04 to $0.05
Miscellaneous field expense	0.04 to 0.06
Repairs and renewals	0.04 to 0.05
General expense	0.02 to 0.04
Total direct cost	0.14 to 0.20
Depreciation as above	0.14 to 0.23
Total cost[2]	0.28 to 0.43

Mr. William Forstner in discussing the valuation of oil lands[3] divides oil properties into eight classes as follows:

1. Properties with producing wells and surrounded by producing properties.

2. Properties surrounded by producing properties, but not developed.

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[1] Ibid., p 28.

[2] The foregoing data have been introduced in order to give a basis for comparison with other fields. It should be noted particularly that these data are based on a 4 percent rate of depreciation for oil lands, 7 percent for equipment, and 10 percent on the cost of individual wells and appurtenances.

[3] Min. and Sci. Press, 1911, CIII., 578.

3. Properties with producing wells, but only partly surrounded by producing territory.

4. Properties partly surrounded by producing territory, and undeveloped.

5. Properties with producing wells, but at a short distance from other producing territory.

6. Properties at a short distance from producing territory, but undeveloped.

7. Properties with producing wells, but at a great distance from other producing territory.

8. Properties at a great distance from other producing territory and undeveloped.

In the opinion of Mr. Forstner, the yearly returns of California properties in the several classes should be at the following rates:

Class 1, 16 to 25 percent; Class 2, 23 to 28 percent; Class 3, 18 to 27 percent; Class 4, 24 to 33 1/2 percent; Class 5, 24 1/2 to 33 percent; Class 6, 30 to 42 percent; Class 7, 31 to 40 1/2 percent; Class 8, no estimate made as the property can not be valued.

Data on the Illinois field have been collected by Mr. R. S. Blatchley.[1] The cost of drilling wells[2] and of operating leases[3] furnishes a basis for valuation of Illinois oil properties. The cost of operating the lease is almost negligible when considered in connection with the earning power of the wells. In some of the

[1] Blatchley, R.S. The oil fields of Crawford and Lawrence counties. Bull. 22, Illinois Geological Survey, 1913.

[2] *Ibid.*, pp 153, 160

[3] *Ibid.*, p 161.

counties the operating profits have been low, while the Clark county fields "have been among the most profitable in the world because of the low cost of development and the high returns. The essential feature in operating is to overcome first cost and the interest on the investment. In the shallow fields eight wells steadily making two and even one barrel per day are found to be profitable."[1] Statistics are given to show that the profits resulting to one company operating 100 wells will give an average net income of $3,000 per month. The valuation of producing wells is considered on a strictly commercial and conservative basis. Purchasing companies gauge the output of a well for ten days and determine the average daily yield. The price per barrel for a producing lease is from $400 to $500. A 40-acre lease producing 500 barrels per day would sell at approximately $200,000 and with a reasonable decline in production should pay for itself in about three years.[2] The total yield per acre of oil fields varies widely, some have produced only 500 barrels or less per acre while others have produced from 10,000 to 50,000 barrels.[3] The reports do not indicate what amounts may properly be charged off to depreciation.

In West Virginia the appraisal of oil wells is made by the local assessors acting under instructions from the State Tax Commissioner. "The royalty interest in a well-settled producing well is worth in the market for commercial purposes $1250 for each barrel of oil produced every 24 hours; while the working interest

[1] _Ibid._, p 161.

[2] _Ibid._, p 162.

[3] According to the U.S. Census Reports, 1910, Vol. XI., the oil fields of Illinois had a surplus above operating expenses amounting to $5,491,869 in 1909. Out of this surplus taxes amounting to $72,107 were paid, or 1.32 percent of the surplus.

is worth $1000 for each barrel produced in 24 hours."[1]

From the foregoing it is evident that oil properties are bought and sold on the basis of production and it seems logical to presume that oil properties can be appraised on much the same basis.

(f) Mineral rights. The subject of mineral rights has been discussed at some length under several of the foregoing headings, but it may be well to review in general the experience of the states and to note the present tendencies in valuing this type of property. In general the coal-mining right, when not owned by the owner of the surface is assessed as the property of the individual or corporation claiming ownership. In a number of the states exceptions to this rule are made when there is no definite knowledge of the quantity and quality of the coal. In several of the ore mining states, notably Michigan, Wisconsin, and Minnesota, laws have been enacted which prescribe that mineral rights shall be taxed to the owner.

In many instances the mineral rights of unexplored lands have been reserved when the surface has been sold. When Mr. Finlay appraised the mining property in Michigan he made the statement that no means were found for placing a value on unexplored iron ore formation. "If we could compare an area of fresh iron lands with another area that had been explored and had proved to contain a certain tonnage of iron ore, we might then rationally assume that the undeveloped land would reduce somewhat in the same proportion, but it has been impossible to make any such comparison."[2]

Professor A. C. Lane in discussing the valuation of miner-

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1 Instructions to Assessors, 1910, West Virginia, pp 8, 15, 16.

2 Finlay, J.R.. Appraisal of mining properties of Michigan. p 60.

points out that there is a demand for mineral rights, al rights, that they are bought and sold, and that they can be appraised on this basis. He discussed the problem carefully for the Lake Superior copper district and concluded "that mineral rights have a value which is but a small fraction of the selling price. It is possible to determine an average value for them which may be called the taxation value. The actual return to a given small holder of a small area of mineral rights will depend partly upon its accessibility but largely upon the ability of himself or his neighbors to hustle and get his tract developed sooner than the tract of some one else. This personal ability is a thing which the state can not foresee nor tax".[1]

In discussing the taxation of leaseholds, Mr. Chance calls attention to the great difference among the states in the taxation of leaseholds.[2] "The equity of a lessee in the coal is not assessed as taxable property in Alabama, Arkansas, Colorado, Kansas, Missouri, Utah, and Virginia. Such equity may be assessed as taxable property in Illinois, Iowa, Kentucky, Tennessee, Ohio, Pennsylvania, West Virginia, and Wyoming, but the practice is not uniform throughout any one of these states; in the aggregate only a comparatively small number of leaseholds being assessed for taxation. The whole value of the coal held under lease is usually assessed to the owner of the property, the equity of the lessee being disregarded."[3]

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1 Lane, A.C. Taxation value of mineral rights. Eng. and Min. Jour., 1912, XCIV., 897.

See also McDonald, P.B. Taxation of mineral rights in Michigan. Eng. and Min. Jour., 1912, XCIII., 1908.

Fourth Bien. Report, Minn. Tax Comm., 1914, Chap. VII.

2 See the taxation of leaseholds in West Virginia, p___.

3 Chance, H.M. The appraisal of coal land for taxation. Bull. 91, Amer. Inst. Min. Engrs., July, 1914, p 1461.

Effect of taxes upon the value of mines. The value of mining property is reduced as taxes become heavier and unproductive property may have no present value due to the fact that the annual taxes at compound interest may amount to more than the earnings.

An investigation of the problem of interests and discounts in connection with the mining of ore bodies subject to annual taxation led Mr. W. L. Uglow to the conclusion that "an ore body held in reserve for 33 1/3 years has no present value if taxes are levied at three percent. The effect of this tax factor may even be great enough to impede the development of a reserve for more than five or six years in advance, or to cause the wasteful depletion of ore that would normally last longer than that period."[1]

In discussing the taxation item in the valuation of mines, Mr. R. B. Brinsmade presents[2] the following:

Let V = value or present worth of a $1 dividend to be assessed by taxation.

a = annuity to be paid to sinking-fund.
r = rate of interest earned on sinking-fund.
R = rate of interest earned on investment.
t = current rate of taxation.
n = number of years dividend is to be earned.

Then by suggested system $$\$1 = (R + t)\,V + a \qquad \text{(A)}$$

and from algebra $$a = \frac{V\,r}{(1 + r)^n - 1} \qquad \text{(B)}$$

Substitute in (A) the value of a in (B) and

$$1 = (R + t)\,V + \frac{V\,r}{(1 + r)^n - 1} \qquad \text{(C)}$$

Solving (C) for V and

$$V = \frac{1}{R + t + \dfrac{r}{(1 + r)^n - 1}} \qquad \text{(D)}$$

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[1] Uglow, W.L. Methods of mine valuation and assessment. Bull. XLI., Wis. Geol. and Nat. Hist. Survey, 1915. p 46.

[2] Brinsmade, R.B. Valuation of iron mines. Trans., Amer. Inst. Min. Engrs., 1913, XLV., 324.

The experience of several of the important mining states will be considered in detail in order to present adequately the problems of appraisal of the various types of mineral properties.

Minnesota

When the system of taxing iron mines upon the tonnage of ore produced was discontinued in Minnesota in 1897, the general property tax was again made effective and it became necessary to appraise the mines. Two distinct types of mines are operated in this state, namely, open-pits and mines worked through shafts. Until 1907, practically the same methods of appraisal that had been used in other mining states were used in Minnesota but there prevailed generally a sentiment that the mines were not paying their full share of taxes. The Minnesota Tax Commission was created in 1907 and a resolution of the State Legislature passed in April, 1907, called the attention of the Commission to the need of a revision of the assessment of the mines and mineral lands,- the resolution advising that the total assessed value should be raised to approximately $225,000,000. During the session of the legislature a committee was appointed to "investigate the best methods of taxing the iron ore properties." This committee reported that the ore properties were assessed at only one-fifth of the amount at which they should be assessed. The Tax Commission collected all data available concerning the iron mines and prospects, at that time numbering 2,116, and proceeded to classify the mines upon the technical and commercial data that were secured. After this classification had been made, the mines and lands were valued and the operators were given an opportunity to show at a public hearing why the increased valuations should not be entered upon the tax rolls.[1]

The full plan and the method of classification and valuation were presented at this meeting. The factors taken into consideration in the valuation were: (1) Geological conditions; (2) difficulty of mining; (3) character of the ore; (4) character of mining rights.

Classification and rates in 1908. Mining properties were divided into two grand groups,- operating mines and prospects. The operating mines were classed in five groups, as follows:[2]

Class I. (a) Properties where mining was comparatively inexpensive and the ore high grade.

(b) Properties where mining was comparatively easy and the ore of lower grade.

Class II. Properties where mining was somewhat more difficult and the mining cost greater than in the case of Class I, and the ore of mixed grade.

Class III. Underground properties where the expense of mining was comparatively low for that kind of mining and the ore of high grade.

Class IV. Underground or milling-pit properties of distinctly second grade, determined by a higher cost of mining and lower grade of ore than in the case of Class III.

Class V. Mines of inferior character where expenses of operation are high.

Prospects were divided into four classes or groups, as follows:

Class I. Lands that had been drilled and test-pitted, and where stripping of the overburden had been carried on. In other words, where the property was about to become a mine.

Class II. Lands that had been drilled and test-pitted and ore found in some abundance.

Class III. Unexplored lands near good mining properties.

1 Minn. Tax Commission, 1st. Bien. Rep., 1908, p 119.

2 Ibid., p 120.

Class IV. Lands that had not been explored but were in the well known ore-belt.

The rates of valuation per ton in the ground were fixed as shown in the accompanying table:

	Class I	Class II	Class III	Class IV	Class V
Operating mines (a)	33c	27c	23c	19c	14c
(b)	30c				
Prospects	15c	10c	8c	$3 to $50 per acre.	

"In the determination of the rates, the commission was confronted by a number of serious problems,- how to get a taxable valuation of iron properties that would be fair to the state and to the owners of the properties. The rates arrived at were in the main determined by several factors:

(1) The difference between the cost of mining and the average price of iron ore during the preceding three years.

(2) By the present worth of the difference for a period of twenty years on a basis of four percent rate of interest.

(3) By the percentage of the assessed valuation of real property in the state to the full value of such property.

The classes referred to and the rates established for them were determined as far as possible by the differences between mines in cost of operation, difficulty of mining, and grade of ore.

No better method of valuation was suggested at the hearing of mine owners, and it was the best that the commission could do under the ad valorem requirements of the law."[1]

The report of the commission shows that there was a disposition on the part of the mining companies to give all help that would lead to a fair valuation.

During subsequent years some improved methods have been used. The Second Biennial Report of the Commission gives further

[1] Ibid., p 122.

details,[1] describing how the estimate of tonnage was made and how the ore was graded.

Prior to 1909, the classification of iron ore and the tonnage estimates were based largely on blue prints of explorations furnished by owners, lessees, or operators of the various properties. It was deemed advisable to have the explorations, computations, and estimates verified by disinterested and competent engineers. In June, 1909, the faculty of the Mining Department of the University of Minnesota entered upon this work for the Tax Commission and has continued the work to date.

Classification and rates in 1909. In 1909 a rearrangement of classes was made, the various mineral properties being classified as active mines, reserves, and sub-reserves.[2] "Reserves are described as mineral properties that have been drilled and tested, and upon which measurable tonnages of merchantable ore are known to exist but have not been developed, because of remoteness from or lack of transportation facilities, market conditions, or other causes that would render their present operation unprofitable. Sub-reserves are a secondary class of reserves and are valued at a lower rate than either of the other classes."[3]

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1 p 56. See also 3d Bien. Rep., 1912, p 65.

2 Minn. Tax Com., 2d Bien. Rep., 1910, p 80. "In addition to reserves there is a class of unexplored lands that from surrounding deposits and other circumstances justify the belief that they contain merchantable ore. In such cases the assessed value is usually placed at a much higher figure than adjoining lands that are known to be outside of the mineral belt, or on lands that have been drilled and no merchantable ore found on them." p 85.

3 Minn. Tax Com., 3d Bien. Rep., 1912, p 85.

The new classes and rates were as follows:

	Active mines cents	Reserves cents	Sub-reserves cents
Class 1	33	21	15
Class 2	30	18	10
Class 3	27	15	
Class 4	23	11	
Class 5	19	10	
Class 6	14	8	

The only change made in the active mines in the new classification was in the class number, 1-b being eliminated, and the classes numbered from 1 to 6 consecutively. Considerable change, however, was made in the reserve classes, five new classes being added and a substantial increase in rates made in two other classes. It was felt that certain reserves adjacent to active mines and shortly to become shipping mines should take a higher rate than the one first imposed by the commission.[1]

After the work of re-classification had been completed in 1910 and new tonnages and reserves had been added to the assessment rolls, the commission made a general increase of 5 percent on all mines, reserves, and other lands in the ore belt. The rates after this increase had been applied were as follows:

	Active mines cents	Reserves cents	Sub-reserves cents
Class 1	34.65	22.05	15.75
Class 2	31.50	18.90	10.50
Class 3	28.35	15.75	
Class 4	24.15	11.55	
Class 5	19.95	10.50	
Class 6	14.70	8.40	

Rates in 1911 and 1912. The tonnage rates in 1911 were the same as in 1911 for the same classes. In 1912 a general increase of 5 percent was made. The revised rates were as follows:

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[1] *Ibid.*, p 80.

	Active mines cents	Reserves cents	Sub-reserves cents
Class 1	36.3825	23.1525	16.5375
Class 2	33.0750	19.8450	11.0250
Class 3	29.7675	16.5375	
Class 4	25.3575	12.1275	
Class 5	20.9475	11.0250	
Class 6[1]	16.5375	8.82	
Class 7	15.4350		
Class 8	14.70		

Classification and rates in 1914. The standard classification now employed is given in the Tax Commission Report for 1914.[2]

Active mine tonnage

Class

1. Open pit, low mining cost, high grade ore.
2. Open pit, moderate mining cost, medium grade ore.
3. Open pit, high mining cost, mixed grade ore.
4. Underground, low mining cost, high grade ore.
5. Underground, moderate mining cost, medium grade ore.
6. Underground, high mining cost, excess rock and water, mixed grade ore.

Reserve tonnage

Class

1. Undeveloped reserve ore of active mines, class 1.
2. Undeveloped reserve ore of active mines, class 2.
3. Undeveloped reserve ore of active mines, class 3.
4. Partially developed and stripped, high grade ore.
5. Partially developed, not stripped, medium grade ore.
6. Partially developed, not stripped, mixed grade ore.

In 1907 classes 3, 5, and 6 were numbered 1, 2, and 3 and corresponded with standards described in classes 4, 5, and 6.

Class 3 is also a sub-reserve rate for class 1 and for active mines of wash ore.

Class 5 is also a sub-reserve rate for class 3.

General rate increases of five percent have been made in 1910, 1912, and 1914. These represent a total increase over the

[1] Applied to shipping mines, Itasca county.

[2] 4th Bien. Rep., Chap. VI. and VII.

1907 valuation of 15.75 percent.

The assessed rates per ton which have been used since the appraisal has been made by the Tax Commission have been as follows:

Classified assessed rates per ton

Class	Rates per Ton 1907-1908		Rates per Ton 1909		Rates per Ton 1910-1911		Rates per Ton 1912-1913		Rates per per ton 1914	
	Mine Cts.	Res. Cts.	Mine Cts.	Res. Cts.	Mine Cts.	Res. Cts.	Mine Cts.	Reserve Cents	Mine Cts.	Res. Cts.
1	33	15	33	21	34.65	22.05	36.38	23.15	38.20	24.31
2	30	10	30	18	31.50	18.90	33.08	19.85	34.73	20.84
3	27	8	27	15	28.35	15.75	29.77	16.54	31.26	17.36
4	23		23	11	24.15	11.55	25.36	12.13	26.63	12.73
5	19		19	10	19.95	10.50	20.95	11.03	21.99	11.58
6	14		14	8	14.70	8.40	15.44	8.82	16.21	9.26

This classification is adjusted so that proper allowances can be made for the following conditions:

The classification provides automatic rate adjustments to meet: (1) the greater value of the better grades, and the shorter periods of discount for active mine ore exhaustion, or both; (2) the various grades and the longer periods of discount for the reserves of active mines and of all other reserves; (3) the proper rate to apply, as a reserve passes into the active or operating mine class.

The effect of this method of valuation is exhibited by the following data:

	1906 Assessed value	Percent total	1912 Assessed value	Percent total
All real property	$751,887,611			
Acre property	392,979,128	52.27	492,172,962	42.78
City and village property	294,422,074	39.16	398,802,305	34.67
Mineral property	64,486,409	8.57	259,418,277	22.55

Factors in present valuation. The essential and controlling features of this method of valuation seem to be based upon the following:

1. Gross tonnage of ore in the state.
2. Total annual output.
3. Average rate of exhaustion.
4. Classification of mines and reserves, according to quality of ore, marketability, present cost of mining, and average profit per ton.
5. On the basis that money is worth 4 percent and that the average period of exhaustion for all the mines of the state would be 20 years, the present worth of the ore was determined for each class.
6. Upon this base equalization has been effected, first, between individual mines, on account of any important local conditions which were not made factors in the classifications;- and later between the mines and other property.

According to the laws now in force property is assessed as follows:

Class I. Iron ore whether mined or unmined shall constitute class one (1) and shall be valued and assessed at fifty (50) percent of its true and full value. If unmined, it shall be assessed with and as a part of the real estate in which it is located, but at the rate aforesaid. The real estate in which iron ore is located, other than the ore, shall be classified and assessed in accordance with the provisions of classes three(3) and four (4) as the case may be. In assessing any tract or lot of real estate in which iron ore is known to exist the assessable value of the ore exclusive of the land in which it is located, and the assessable value of the land exclusive of the ore shall be determined and set down separately and the aggregate of the two shall be assessed against the tract or lot. Minn. Laws of 1913, Chap. 483.

Class II. Household goods shall be valued and assessed at 25 percent of the full and true value.

Class III. Live stock, stocks of merchandise, tools, machinery and all unplatted real estate, except as provided in Class I shall be valued and assessed at thirty-three and one-third percent of the true and full value thereof.

Class IV. All property not included in the three preceding classes shall be valued and assessed at forty percent of the full and true value.

The reason given for appraising mined and unmined ore at 50 cents on the dollar while other property is valued at a lower rate is that property in general continues the object of taxation, but mines and the ores they produce are taxed for a relatively short time.[1] By some it is claimed that this is practically a method of taxing unearned increment, or what might be called a "natural increment".

The legislature of 1905 enacted the following law:

"That whenever any mineral, gas, coal, oil, or other similar interests in real estate are owned separately and apart from and independently of the rights and interests owned in the surface of such real estate, such mineral, gas, coal, oil, or other similar interests may be assessed and taxed separately from such surface rights and interests in said real estate, and may be sold for taxes in the same manner and with the same effect as other interests in real estate are sold for taxes".[2]

Owing to the decision of the courts in Washburn v. Gregory Company,[3] it is recommended by the tax commission[4] that the legislature change the present law in the preceding paragraph, and "provide that an assessment on any land by its ordinary description shall be deemed to cover all mineral reservations. If the legislature should deem it wise to change the law as above indicated it should also make a provision that in case the owner of the surface or the owner of the mineral rights asked to have them separately assessed his request should be complied with".

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1 There is, therefore, a question whether taxes are levied, as claimed, simply upon profits; apparently there is an effort made to take for the state a share in the proceeds of the ore, The ultimate effect of such practice will undoubtedly be to reduce the value, to the mine operator and land owner, of ore in the ground, on account of this increased expenditure for taxes.

2 General Statutes, 1913, Sec. 1973.

3 125 Minn. 491.

4 4th Bien. Report, 1914, p 152.

Engineering field work. The appraisal as carried on at present through the Mining Department of the University of Minnesota meets with the hearty cooperation of the mining companies and the complete records of prospecting and development, as well as data on costs, analysis, and prices of ore are available for the use of the engineers of the Tax Commission. The drill records and other data of ore development are checked as far as possible and the tonnages are determined by the engineers. Properties are inspected from time to time and as frequently as developments of new ore-bodies and exhaustion of old ones indicate important changes in a mine. The tonnages are classified and the mining companies have an opportunity to file a protest against both the tonnage and the classification.[1] The rate for each class is determined by the Tax Commission and each mine is then appraised at half the amount resulting from adding together the value of the ore in each class figured at the rates for that class.[2]

Cost of appraisal. The cost of the appraisal by the engineers is comparatively small when the gross value of the properties appraised is considered. At the present time the engineers are not making any analyses of ores as there is sufficient checking of analyses at the mine, at the docks, and at the iron furnaces. The engineers do not investigate titles as this is done by other employees

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1 In 1914 there were but eleven applications for reduction in the assessment of mineral properties and these were all of minor importance. (4th Bien. Rep., Minn. Tax Comm., 1914, p 84.)

2 The rates have been increased 5 percent three times since the first appraisal; this represents a total increase of 15 3/4 per cent over the 1907 valuation. The instructions now are that mining property shall be valued at 50 cents on the dollar. Formerly it was estimated that property was appraised at 43 cents on the dollar; a 15 3/4 percent increase on this basis would mean 6.77

of the commission. The entire expense of the engineering work together with a pro rata share of the entire expense of the Tax Commission is approximately $14,000. The assessed valuation of the iron ore of the state in 1913 was $256,676,686 and the total taxes paid by the mining companies amounted to $6,258,291. This represents an expenditure of $.0000545 per $1000 appraised and $.00224 per $1000 of taxes collected.

Michigan

Finlay appraisal. For a number of years following 1891, the year in which the tonnage tax was repealed, there was considerable dissatisfaction on the part of tax-payers, particularly the owners of farm lands, with the results of the assessment of the mineral properties in Michigan.[1] The work done in Minnesota in appraising the iron ore mines and lands attracted attention and in 1911 the Michigan legislature instructed the State Tax Commission to secure competent technical assistance and make a complete appraisal of all the mines of the state. The time allotted for doing the work was short but a comprehensive report was submitted which established a systematic procedure for appraising the mines of the state. In Minnesota there were only iron mines to appraise, while in Michigan there were iron, copper, coal, salt, and gypsum

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which would raise the basis for mines to 49.77 cents on the dollar. It is evident that the new law will make little change in the results of the appraisal of mines.

1 The following data will illustrate the reason for this dissatisfaction.

A mine was listed by the assessors, on 1/3 valuation	$50,000.00
Cash paid in by stockholders	1,200,000.00
Company's estimate of real estate, plant, equipment	807,334.95
Market value of stock	300,000.00
Gross earnings for year	178,727.53

mines as well as quarries. These latter, however, the appraiser did not consider advisable to classify as "mines" and limited his report to the copper, iron, and coal mines. As the mines that were appraised included some types distinct from those valued by the Minnesota Tax Commission, the report will be considered in some detail. The appraiser endeavored to determine the "value of the mines to the permanent owner for the production of minerals"[1] and did not consider the market value of the stock of companies, insisting that speculative value should not enter into a conservative appraisal.

Factors in valuation. The valuation was based on three factors, - average cost of production, average prices, and an estimate of the future period of production. Average costs of product and average prices of product were determined by experience but the trend of future prices was considered. "The life of the mine is based partly on developed ore and partly upon an assumption of continuance of known ore bodies beyond the present bottom levels of the mines. The assumption of continuance is based mainly upon the extent to which the continuity of the deposits has been proved for the district and for the type to which the mine belongs. The future value of a series of dividends is reduced to a present value by the annuity method; that is, a sum is calculated upon which the series of dividends shall pay 5 percent interest and also provide each year a sinking-fund installment which, invested each year at 4 percent interest, and added to prior installments similarly invested and reinvested, will equal the sum taken. This sum is the

1 Finlay, J.R. Appraisal of mining properties of Michigan. Lansing, 1911. p 10.

amount which an investor can afford to pay for the property." On this basis no present value was given to unprofitable mines. Likewise unproductive property could not be assessed on this basis.

In appraising the copper mines, the market value of mining stock was not considered nor the equipment of the mines, but simply the earning power and the life of each mine. In order to determine the value of the mines, the data of costs and production for five years were collected together with the prospective tonnage and content of rock from unmined areas.[1] Only nine copper mining companies paid dividends from 1905 to 1910; the record of twelve mines was such that they could be classed as probably profitable in the future. All of the other mines were appraised at zero on account of their records of cost of production. Attempts to determine an acreage value for unproductive mines and undeveloped lands were not successful. According to the appraiser it seemed "ridiculous to place a valuation upon lands which have no showing at all when costly operations upon lands that have considerable showings of copper have not proved those showings to have any value, but, on the contrary, in most cases have proved them not to have any value."[2]

Mr. Finlay discussed at some length the value of iron ore, the possible effect upon Michigan iron-mining of foreign competition, and the effect of taking off the tariff on manufactured iron and steel. He concluded that "the iron ore market will continue in the future on substantially the same course it has pursued in the

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1 From the production to date, an estimate for such mine was made to determine the output of mineral per acre. Allowing a factor for decrease in value with depth, the probable output from the unmined areas was determined.

2 Ibid., p 32.

past; that the demand is sure to increase, and that prices are more likely to be higher than they are to be lower than the average of the past seven years".[1] Attention was called to the fact that many iron mines operate upon leased lands and pay a royalty per ton of iron ore mined. Such royalties may be considered from the viewpoint of the mining operator as an expense; from the viewpoint of the state they represent a net profit of the iron mining business.

On the basis of iron ore reserves and records of costs and profits, it was estimated that production and earnings could be continued on the iron ranges on the same basis for sixteen years, and probably a longer period. The estimates of ore reserves were based on (a) ore found in drill-holes, (b) ore reported by companies as being in sight above the bottom levels of the mines, and (c) an additional amount of ore added on the judgment of the appraisers based upon the conditions on the bottom levels. In some of the districts extensive drilling made it possible to estimate the extent of the ore-bodies with sufficient accuracy for such an appraisal. The following paragraph from the discussion of the valuation of the Menominee Range indicates the manner in which generalizations as to the continuity of the ore-bodies of the districts were made.

> "The total amount of ore accounted for above the 1,160 foot level is 50,645,807 tons. This means that the average horizontal area of the ore-bodies has been in the past approximately 440,000 square feet. If we assume that this area is normal for the 580 foot level and that for the 1,160 foot level the area is only 263,000 square feet, we get a diminution of approximately 180,000 square feet in 600 feet. This means that each additional 100 feet in depth means a diminution of area of 30,000 square feet. On this basis we might assume that the ore would vanish at a depth of 1,900 feet. This assumption would leave us below the present bottoms approximately 9,000,000 tons."[2] "A continuation of life (of a mine at the

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1 Ibid., p 37.

2 Ibid., p 51.

assumed rate of production) beyond 20 years adds to the present value very slowly, and wherever the ore supply is sufficient to maintain output for even 15 years, it is not worth while to be critical about the amount of addition that might be made."[1]

The problem of determining the length of the period from which average operating costs and average market prices shall be determined has aroused considerable discussion. In Great Britain this has been fixed by law.[2]

Mines which are being exhausted rapidly and whose output and value are declining rapidly would obviously benefit by being assessed on a three years' average. One effect of the five years' average period is that Mr. Finlay determined the average price of copper for the period of twenty years and found that there has been a gradual increase in the price. He also considered the average over ten-year periods and came to the conclusion that the trend was upward. The average for the last ten-year period was 14.702 cents per pound, and he used 14 cents as the average price in his valuation. For most of the mines the average cost was figured on a five-year basis.

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1 Ibid., p 57.

2 The Income Tax Act of 1842 specified that collieries, in common with other mines, shall be assessed on the full gain of one year, or an average of the five preceding years, but if, from some unavoidable cause, any mine has been decreased and is decreasing in the annual value, so that a five-years' average will not give a fair and just estimate of the annual value, such annual value can be computed on the actual amount of profits for the preceding year, subject to the usual abatement, on account of diminution of duty within the current year; and if any mine shall have wholly failed, the assessment can be wholly discharged. (Trans. Inst. Min. Engrs., 1914, XXIX., 93.)
By the Act of 1866, mines were transferred to the schedule for property assessed on the three years' average. Quarries were transferred from the class of property assessed on a one-year basis to the class on the three-year basis. However, mines are generally appraised on the average of five years' returns.

In estimating the price of iron ore, the average quotations for standard ores for a period of seven years were taken; this average, however, differed but little from the average for five years. In determining the probable cost of mining iron ore the average cost for the period of five years preceding was taken and allowance made for any expected increase or decrease in operating expenses. To illustrate the method of calculation used in determining the present value of the iron mines the following summary of data for the five-year period for District I (Gogebic county) is given.[1] Similar data were compiled for the other districts.

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1 <u>Ibid.</u>, p 61.

DISTRICT NO. 1.

Gogebic County, Michigan.

	Totals	Per ton.
Number of mines and explorations reported	20	
Wages and salaries paid	$16,632,296 40	
General expenses (not including taxes)	1,558,705 93	.098
Construction, development and explorations	4,083,864 20	.260
Mining expense	21,207,105 10	1.355
Total cost at mine	$26,849,675 23	1.72
Rail freights paid	6,002,288 37	.40
Lake freights paid	10,585,921 64	.71
Commissions paid	695,520 57	.046
		2.876#
Total expense	$44,133,405 81	
		F.O.B. Cleveland
Total tons sold 15,183,842		
Total tons shipped 15,393,642		
Total tons mined 15,711,053		
Receipts from sale of ore	65,694,536 07	
Total operating profit of 12 mines	21,944,683 57	
Taxes	992,272 42	
Proportion taxes to operating profits (%)	4 55	
Royalties	5,960,403 65	
Profit to companies (12 mines)	15,212,854 39	
Total profits 12 mines including royalties	20,957,419 53	
Total loss to three mines (Exploration and development properties not included	678,579 85	
Total tonnage reported in sight	17,354,100	
Tons added by appraiser	25,645,900	
Total tonnage expected	43,000,000	
Average yearly value (expected) per ton	$4 22	
Av. cost per ton expected F.O.B. Cleveland	2 87*	
Average profit per ton expected	1 35	
Annual tonnage expected	2,875,000	
Present value of mines	$41,560,000 00	

As a result of the Finlay appraisal there followed considerable discussion and many protests were made by the iron mining interests. The officers of the Michigan Tax Commission arranged for hearings of the complaints of the mining interests and a number

The average cost per ton includes mines worked at a loss.

* The expected cost per ton is only for mines expected to work at a profit.

of changes were made in the valuations of the appraiser before they were placed upon the assessor's lists.[1]

Michigan system of appraisal. Since 1911, the Tax Commission has had technical assistance in appraising the iron mines and beginning with 1913, the State Geologist has been Mine Appraiser for the Tax Commission.

In order to show the essential characteristics of the methods at present in use by the Michigan Geological Survey, it may not be inappropriate to point out specifically the points in which departures have been made from the Finlay appraisal of 1911.

(1) The Finlay method followed more or less rigid rules while the present method is comparatively elastic.

(2) The interest rate now used is 6 percent on both capital and redemption fund, while Mr. Finlay used 5 and 4 percent respectively.

(3) At present in the valuation of undeveloped or unproductive mines when earnings will be deferred, proper allowance is made.

(4) The Finlay valuation did not include ore in stock piles. At present such ore is included in the valuation.

(5) Mr. Finlay did not appraise unprofitable operating properties. These are now valued according to the judgment of the appraiser because the mine is supposed to be worth something or otherwise it would not be operated.

(6) Mr. Finlay appraised for taxation on the basis of value to the owner. The present method attempts to determine the value on the market.

(7) With the higher rate of interest now used, hazard rates

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[1] Mr. Finlay valued the iron mines of the four counties at $119,485,000; the supervisors had appraised the same mines at $ 19,623,508; the Tax Commission adopted the figures $85,567,500.

or "cuts" are applied to the various factors according to the judgment of the appraiser. These hazards vary with the mine. This has been found preferable to a sliding scale of interest.

(8) Mr. Finlay figured on future prices of the product. The present Michigan method is based on the prices and profits for an average of the last five years. Mining costs are figured in about the same manner.

Capital account. Capital account is not allowed in the cost sheets of the mining companies as the appraiser considers this in a uniform manner in valuing all the mines. Taxes are allowed as an item of cost but royalties are not allowed.

Stock piles. Mined and unmined ore are now treated practically alike, although the mined ore is classed as personalty. The rate on real estate and personal property is the same so it is immaterial to the mining company whether the ore is taxed in the stock pile or in the mine provided it is not subjected to double taxation. On December 31, the total amount of ore in the mines and on the stock pile is determined. On April 2 following, a report of the ore in the stock pile is filed and any increase in the tonnage reported stocked April 2, as compared with the tonnage of December 31, is deducted from the tonnage in the mine December 31, so that the mine is taxed on the total tonnage of December 31.

Inspection. Mines are not classified or grouped except in a general way in counties or districts for the purpose of comparison and equalization when the properties are of the same character. Mines are inspected annually. There were in all 132 valuations in 1914.[1]

[1] There have been no protests by any mining company against the valuations for 1914.

Copper mines. The copper mines were included in the Finlay valuation, but have not been appraised since. It is apparently the opinion of most of the interested parties that the copper mines are entered upon the tax rolls at more than their present value. Local officials have requested the Tax Commission to appraise these mines and it seems probable that when the mines are operating under normal conditions a careful appraisal will be made. The Finlay appraisal returned the mines at $69,000,000, but these figures were not used. At the present time the mines are rated by the local assessors and boards at $93,000,000. In general, the copper mines of the Lake Superior district have been appraised on the basis of the current market quotations of copper stocks. The equalization for 1914 was based on the stock quotations for April 13, 1914. Producing dividend-paying mines were valued at 80.5 percent of the stock valuation; producing but non-dividend-paying mines, at 67 percent; non-producing and non-dividend-paying mines at 53.6 percent. It was found that the dividend-paying mines were returning on an average 7.31 percent in the market value of the stock.

Coal and other mines. At the present time the appraiser of mines does not place a value upon the coal mines, salt plants, and other mineral properties. The figures submitted by the appraiser in 1911 for the coal mines have not been placed upon the tax rolls. The practice of the local assessors is to value the plant, but generally the coal rights are not assessed.

Mineral lands and prospects. Mineral lands are classified on a geological basis depending upon the probability of iron ore being found in the formations known or supposed to exist beneath the surface. This classification into three groups is made entirely upon the judgment of the appraiser. Class A is the most valuable and lands of this class are rated uniformly at $500 per 40 acres. Class B is rated at $300 and Class C at $100 per 40 acres.

Prospects must be assessed more or less arbitrarily upon the judgment of the appraiser as to what properties of this type would actually bring on the market.

Plant. Surface plant and improvements used exclusively for mining purposes are not taxed as in this system of valuation no value is attached to them. Only those improvements which are directly connected with the mining operations are exempt; stores, houses, hospitals, etc., are taxed. A mine power-plant furnishing power only to the mine of the owner is not taxed. In the case of a mine power-plant located outside of the taxing district in which the mine is located, the power-plant is taxed as a power-plant where it is located, but the valuation of the mine in the other district is reduced by the amount at which the power plant is valued. In this way the mine operator pays no more taxes than if the power-plant were located contiguous to the mine. A mine whose power-plant sells power is permitted to charge itself for power at the custom rate, but the power-plant is then taxed as if it were not owned by the mine.

Royalties. Royalties are not taxed except that they are included in profits and taxed to the operators.[1]

Local assessments. The local taxing units use the valua-

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[1] According to the Michigan laws of 1891 all annuities and royalties are taxed as personal property. (Laws of 1891, Act No. 200.)

tion of the tax commission whenever such a valuation is made. When the local officials do not use the commission's valuation, the commission may ask for a review. In one instance this was done and the proper figures were thus insisted upon in spite of the apparent unwillingness of the local officials.

Cost of appraisal. The expense of the annual appraisal of the iron mines of Michigan including the pro rata expense of administration of the Michigan Geological Survey is approximately eight thousand dollars. The valuation of these mines January 1, 1914, was $92,090,349. In 1913 the valuation was $82,534,221 and the mines paid taxes amounting to $1,579,124.13. This makes the cost of appraisal $0.005067 per $1000 of taxes collected and $0.000097 per $1000 appraised. It should be noted that this is the cost of appraisal of individual mines which are inspected annually.

Wisconsin

Profitting by the experience of Minnesota and Michigan, Wisconsin, acting through the Tax Commission, has provided for the appraisal of the mineral properties of the State by the State Geological Survey. As previously noted two widely different types of properties are being operated, namely, the iron mines and the zinc mines.

Iron mines. The iron mines produce only two percent of the Lake Superior iron ore, so that the task of appraising the iron mines is a small one when compared with the work in Minnesota and Michigan. There are five operating iron mines on the Gogebic Range, three on the Menominee, two on the Baraboo, and two at Mayville. The first state appraisal of mines for taxation was made in 1912, the methods employed being somewhat similar to those in use in Michigan. Owing to the small number of operating iron mines no classification has been employed as each mine is appraised as nearly as possible upon its present value.

At first in estimating the value of a mine on the basis of earnings and life, the interest rate was taken at 5 percent; it is now taken at 6 percent. The sinking-fund is figured on a 4 per cent basis. The various hazards of mining are considered and deductions of from 10 to 15 percent may be made if conditions justify. The Wisconsin Tax Commission in 1912 decided that mine royalties are taxable as income after allowance is made for depreciation. Mine owners claimed that royalties were a depletion of the original capital.

In general, except at Mayville and in the zinc district the effect of the appraisal by the Geological Survey has been to increase the valuation of the mines. In one instance the assessed valuation was increased from $45,000 to $1,500,000. The local assessors and the boards of review have generally accepted the valuation of the Geological Survey. One exception has been conspicuous; the valuation of an iron mine was reduced by the Board of Review from $300,000 to $75,000.

Zinc mines. The zinc mines of the Platteville district presented a number of problems which had not arisen in the appraisals in Michigan and Minnesota. The Wisconsin Geological Survey made a careful study of conditions in the Platteville district and a comprehensive report on "Method of Mine Valuation and Assessment" with special reference to the zinc mines of southwestern Wisconsin was prepared by Mr. W. L. Uglow.[1]

1 Bull XLI, Ec. Ser. #18, Wis.Geol. and Nat.Hist.Survey, Madison,1914

Part I of this report discusses carefully the conditions in the Platteville district which have an important influence upon mining costs, operating profits, and the value of mining property. Owing to the type and the extent of the ore deposits, the life of the individual mine is generally short and the methods of valuation developed in the iron-mining districts can not be applied justly without the introduction of many factors for variations from the assumed standard conditions.

It was found that prior to 1913, as a general rule, little increase in assessment had been placed upon lands on account of the mineral contained. The common practice in the district has been for the mining operator to own simply a lease, and the leasing company often did not undertake to pay any taxes with the exception of those on income and personal property.

Estimating ore bodies. In estimating the value of a drilled ore body, it is customary for experienced operators to compute, from a map showing the locations of the drill holes, the actual area underlaid with ore and to determine the total tonnage of ore that may be expected from the records of the drilling. In computing the value of the product of the mining and milling operations, the market price of various proportions of the zinc, lead, and iron minerals must be considered carefully. In spite of the painstaking work of competent engineers, the statement is made that, "sufficient mining has not been done in the district on well-drilled ore bodies to admit of a reliable set of average factors for mill recoveries, etc. It is doubtful if such a set of average factors will ever be derived."[1]

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[1] Ibid., p 16.

However, mines and mineral lands are bought and sold on the basis of drilling and it is logical to conclude that appraisal for taxation can be made upon the same data with a degree of accuracy that will approximate that of the engineer upon whose estimates the valuations for sale and purchase are made.

In order to demonstrate the results of appraising zinc mines upon different bases, Mr. Uglow assumed a "hypothetical zinc mine". The assumptions were based upon the actual records of eight operating mines. The hypothetical mine was assumed to have a definite tonnage of ore available which will be worked out in four years. Upon the basis of the operating costs and profits of mines in the district, the profits of the hypothetical mine were determined for each year of operation. Upon these data Mr. Uglow determined the assessed valued of the hypothetical mine under the (1) ad valorem method, (2) the Arizona method, (3) the Colorado method, and (4) the equated income method.[1]

Wisconsin method for zinc mines. The actual method of appraisal[2] employed in 1914 in the Platteville district was a modification of the method used by Mr. J. R. Finlay in appraising the mines of Michigan in 1911. The most important changes are as follows:[3]

> 1. "In properties with a considerable tonnage of ore drilled out and assayed, it was found advisable to base estimates of future grades of ore on this drill-hole information, viewed of course in the light of past production; and not to lay too much stress on the grades of ore produced in the past.
>
> 2. In the smaller properties which have very little probable ore in sight (and consequently an estimated short life) and no

1 A description of the proposed equated income method will be found in Chap. VI., p 181 and Chap. IX., p 274 .

2 Ibid., p 38.

3 Ibid., pp 38, 39.

drillings in advance of the workings, the forecast of future production was based almost entirely on the production of the past year or fraction thereof, almost regardless of the grades of ore produced previous to that time.

3. It was assumed (in the absence of information to the contrary) that each ore body extended 200 feet in advance of each ore breast or the last drill holes in ore, with present dimensions.

4. The average price of spelter was assumed to be $5.15 per cwt. The average price to be expected for ore of any grade for purposes of this calculation, was based partly on this spelter market, and partly on the average of a series of ore prices obtained from several operators and ore buyers of the district.

5. The cost per ton of dirt used in the calculation was based in a general way on the average cost obtained from the past records of each individual mine. The appraiser, however, did not hesitate to use a higher or lower figure, if, in his judgment, this was demanded by conditions liable to be met with in the near future. This variation became of considerable importance in the case of mines with a probable life of a year or less.

6. On account of the difficulty of estimating future probable profits in the form of an annuity, and on account of the short lives of the mines, the table of strict present values given by Hurd's Manual was used instead of the Finlay table.

7. A six percent rate of interest was used.

8. Reductions varying from 10 to 15 percent were made from the valuations thereby obtained. The figure used in each case depended on the judgment of the appraiser as to the probable extent of unforeseen risk."

Mining properties were divided into four classes for the purpose of valuation:

(1) Operating mines, which were making a profit or were likely to make a profit on a $5.15 spelter market.

(2) Mines closed down, but which have ore reserves not likely to be worked at a profit on a $5.15 spelter market.

(3) Prospects with sufficient tonnage of ore drilled to warrant the undertaking of mining operations.

(4) Prospects with small ore bodies drilled, but not sufficiently

large at the time of assessment to insure the profitable undertaking of mining operations.

Valuations were placed on classes (1) and (3) but not on (2) and (4).[1]

A number of objections to this method of valuation have been raised but none, in addition to those previously mentioned, has been offered by Wisconsin operators except the claim that prices of zinc ore and spelter fluctuate more than the prices of iron ore and copper. An investigation showed that this claim is not warranted by statistics.

The system "implies the necessity of predicting reserve tonnage, annual production, grades of ore, costs of mining, and future ore prices. The importance of these difficulties in southwestern Wisconsin can hardly be exaggerated."[2]

Cost of appraisal. The only estimate of the expenses of appraising the mines has been approximate owing to the small number of mines and the fact that the appraisers have been engaged simultaneously upon other work. The best estimate is that the total expense does not exceed $1500 per annum.

Western ore mining states

As previously noted,[3] a number of the western states have either levied a special tax upon production or output or have applied the general property tax rate to some arbitrary valuation of mines. This is in effect taxing mines upon a valuation which is

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1 Ibid., p 40.

2 Ibid., p 68.

3 See Chap. V., p 176.

assessed or determined by legislative enactment rather than by inspection or appraisal at true cost or market value. These programs of assessment usually include the appraisal of the improvements. In many instances the actual value of the so-called "improvement" is negligible. In the following discussion attention will be directed to the assessment of the mine itself and no further reference will be made specifically to improvements.

The special methods of assessment which have been employed recently in the mining districts under consideration include the following:

1. Gross output or gross proceeds.
2. Gross proceeds, less certain specified items of expense.
3. Gross proceeds and a percentage of the net proceeds.
4. A percentage of the gross plus a percentage of the net proceeds.
5. Net proceeds or a percentage of the net proceeds.

A comparison of the valuations that would be placed upon an operating property under each of the foregoing programs demonstrates how widely some of the programs are separated.

Mr. Uglow has shown for a hypothetical zinc mine how widely the appraisal under several programs would vary, as follows:

	Present value
Standard ad valorem method	$250,000
Colorado method	360,000
Arizona method	580,000
Equated income method, using actual annual profits	350,000
" " " " average " "	330,000*

* Bull. XLI., Wisconsin Geological Survey, Plate X.

The actual ratio existing between the assessed valuation and the gross production of the metalliferous mines is shown in the following table prepared by Mr. C. M. Zander.[1]

1913 PRODUCTION AND 1914 ASSESSMENT OF METALLIFEROUS MINES.
Assessment includes non-producers.
Lead and zinc taken from 1910 production.

State	% of full value.	Assessment.	Assessment at full value.	Gross Production	Assessment × Gross on 100 % basis	Method of assessment.
New Mex.	33 1/3	$ 3,700,000	$ 11,100,000	$10,500,000	1	General property by local assessor.
Calif.	50	26,526,000	53,052,000	26,526,000	2	General property by local assessor.
Nev.	45	6,000,000	13,333,000	34,481,682	2/5	Net earnings.
So. Dak.	100	18,840,000	18,840,000 (Inc. coal)	7,500,000 (Not inc. coal)	2	General property supervised by Tax Commission.
Colorado	100	41,455,055	41,455,055	32,542,290	1 1/3	Combination of gross and net.
Idaho	40	8,089,000	20,225,000	18,767,553	1	Net earnings.
Utah	33 1/3	14,483,000	43,449,000	39,703,548	1	Net earnings.
Ariz.	100	146,672,395	146,672,395	70,875,027	2	Combination of gross and net.
		$265,765,440	$348,126,450	$240,896,100	1 1/2	

1 Zander, C.M. Taxation of metalliferous mines. Proc. Nat. Tax Assn., 1914, VIII., 338.

It is important to note that any system of appraisal which considers either gross or net proceeds, or both in any ratio, and which does not consider the life of the mine misses the mark entirely if the actual value of the property is the basis of comparison or the standard set. This statement is made under the assumption that the appraiser has simply the arbitrary directions of the law to guide him.

California. In reporting to the County Assessors Association of California upon his procedure in appraising mines, Mr. C. E. Jarvis, County Assessor of Amador County, California, stated that he divided mining property into four classes, namely, mining locations, patented quartz claims undeveloped, valuable patented claims temporarily unworked, and producing quartz mines. He pointed out the difficulties of appraising and taxing unimproved and unpatented claims, suggesting that a law be enacted authorizing a uniform valuation of $100 per claim. All patented quartz claims situated on the Mother Lode or main lode are valued at $500 while claims on spur lodes are valued at $250. The valuation of an idle property is based largely on the price asked for such a property by the owner. The valuation of producing mines is based in part upon the report of production and costs secured from the officers of the mine. If the mine is not profitable, the improvements are assessed at fifty percent of their cost, while upon the claim is placed a value that "will encourage further development". If the mine is earning a profit, the improvements are assessed at fifty percent of their cost. Stamp mills are assessed at $500 per stamp. Other improvements are valued as carefully as possible. The mine itself is rated at 125 percent of the earnings for the preceding year.[1]

1 Mr. Jarvis favors this method for mines generally, but suggests that other factors must be employed for other types of mines.

In 1912, California mines in the Mother Lode district were paying on the average approximately 7.5 percent of the gross receipts in taxes.[1]

Nevada. The experience of Nevada in dealing with the evasion of taxes by the mining companies handling the ore produced through subsidiary milling companies has already been cited. In this connection it is interesting to note that in 1913 the accounts of a large corporation show that the net earnings from the mine amounted to $332,055.81 while the subsidiary milling company reported net earnings of $1,118,603.97. The gross value of the ore shipped to the mill was $3,144,173.11. An agreement has been made by the Nevada Tax Commission and the mining companies so that proper charges are now made for milling.

West Virginia

The assessing of mineral properties in West Virginia has developed many interesting points particularly in connection with royalties, leaseholds, and oil and gas properties.

Assessors are instructed in appraising mineral rights as follows:

> "In assessing coal, oil, gas and other lands of similar character, you should constantly bear in mind that the fee simple, or what is commonly known as the 'royalty interest', is assessable upon the land books as a part of the body of the land, while the 'working interest' or that interest in such land operated by the 'lessee' is assessed upon the personal property books under the head of 'chattels real' or 'leaseholds'.
>
> "The royalty interest in a well-settled producing well is worth in the market for commercial purposes $1,250. for

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1 Jarvis, C.E. Assessment of mining properties. Min. and Sci. Press, 1912, CV., 210.

each barrel of oil produced every twenty-four hours; while the working interest is worth $1000 for each barrel produced in twenty-four hours. That is, on a tract of land that produced 200 barrels of oil per day, the owner of the royalty interest of one-eighth the production receives 25 barrels of oil per day, and his interest would be worth $31,250; while the owner of the working interest, who receives 175 barrels per day, could sell the same at $100 for each barrel produced in twenty-four hours and his interest would be worth $175,000. The difference between the value of the royalty interests and the working interest, based upon the production, is in favor of the royalty interest, the reason being that there is no expense attached to the production of the royalty interest; whereas, there is more or less expense attached to the working interest, in keeping up the wells. Thus, instead of valuing B's 100 acre tract of land, as per example hereinabove set out, at $1,360. per acre, experience has shown that on account of the short life of such an investment, $1,250. per barrel for every barrel received as royalty in twenty-four hours would be a fair market price for such interest, which would be for oil purposes alone, $31,250. for the 100 acres of land, or $312.50 per acre. B's 100 acre tract is certainly well worth, for oil purposes alone, $312.50 per acre, when you consider that during the year he receives as royalty, according to the calculation above set out, the sum of $136.87 per acre per annum. The working interest in said tract of 100 acres, according to this basis of valuation, would be worth, and would sell for upon the market, $175,000. which interest, if the lease was for a term of years, not being a free-hold estate, would not be charged upon the land books but would be charged upon the personal property books.

"But suppose B instead of leasing his 100 acres for oil purposes and drawing a royalty, is the operator and is producing and receiving from his 100 acres, two hundred barrels per day, which two hundred barrels production is worth, and would sell for $200,000.then would not his 100 acre tract for oil purpose alone be worth $2,000. per acre? In other words if the oil wells on the one hundred acres, are producing two hundred barrels per day, not being encumbered by a leasehold, and could be sold in the open market for $200,000. this tract of land for oil purposes alone would be worth the price of $2,000. per acre."[1]

It is suggested that for gas wells the annual royalty per well be capitalized at six percent and this amount be entered on the tax rolls.[2] But if the life of the gas wells in the community is short the rate should be increased in order to allow for

1 Instructions to Assessors, West Virginia, 1910. pp 8, 15, 16.
2 *Ibid.*, p 19.

the shorter life.

Kansas

In the Kansas coal fields the practice of assessing is practically as follows:

Where the fee to proved coal lands is entirely in one person, it is assessed at $80 per acre. Mineral reserves owned in fee, separate from the surface ownership is listed at $60 per acre; mineral reserves worked out or not proved, $10 per acre; mineral leases on proved coal land, $40 per acre; when the surface owner has leased the coal, $20 per acre is added to the surface value; farm land adjoining proved coal land is assessed $5 in addition to the surface value.[1]

Pennsylvania anthracite mines and lands.

The taxation of anthracite mines and lands of Pennsylvania has attracted much attention, particularly during the last ten years. The principal taxes paid upon these properties have been those levied at the general property rate upon the assessed value of the property as determined by local assessors. In addition, under the law of 1913, the producing anthracite properties pay a tax of two and one-half percent upon the product at the mine when ready for market.

The methods[2] of assessment have been the cause of considerable discussion and litigation.

According to the Pennsylvania Supreme Court decisions the

1 Correspondence, Kansas Tax Commission.

2 See p 198.

only strictly legal method of valuation is that based on actual sales. Exception has been taken to the so-called "foot-acre method," to valuation on the basis of royalty values, and to valuation based on the capitalized estimated profits.[1]

In a comprehensive statement of the conditions in the anthracite fields, Mr. R.V. Norris gives the following data on assessed valuation in the various districts:

Valuations per foot-acre in Wayne county, $67; Lackawanna county, $175; City of Scranton, $300; Luzerne county, $250; Northumberland county, $48 to $61; Schuylkill county, $9.84 to $68.52; Dauphin county, $10 to $16.58.

He considers the foot-acre method unfair to the mining operator because no allowance is made for lack of uniformity in quality of coal, and also for the greater cost of mining of thin beds as compared with thick beds.

Valuation on the basis of royalties paid at the present time have failed to consider the fact that much of the coal will not be mined for years, and that royalty value is not the true present value for such coal.

The plan of valuation on estimated profits has not been used in the anthracite region.

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1 See D. L. & W. R. v. Tax Assessor, 224 Pa. 240, 248-253. (1909)
Wilkes-Barre Coal Co. v. Assess., 225 Pa. 272. (1909)
Lehigh & Wilkes-Barre Coal v. Luzerne, 225 Pa. 267. (1909)
Mineral R.R. & Mining Co. v. Northumberland, etc., 229 Pa. 436-457. (1911)
Philadelphia & Reading Coal & Iron Co. v. Northumberland, etc., 229 Pa. 460. (1911)

Mine accounting and reports to tax commissions.

In order to secure justice among the mines in appraising for the purpose of taxation it is obviously necessary that uniform methods of accounting be followed, at least in so far as the accounts affect the reports filed with the tax commission. In a number of the states there has been friction due to irregularities in accountancy. The laws of certain of the western states are not sufficiently specific in the statement of what deductions may be made from gross earnings in order to determine the net.

It is possible that the requirements enforced by the Federal internal revenue officers in connection with the Federal income tax may be of some assistance to the state officials in prescribing similar rules controlling the accounting as it affects the records upon which the state appraisal is made.

The accompanying forms illustrate the practice of the Michigan and Minnesota Commissions. The tendency is to refrain from interfering in any way with the private records of the operators so long as the data requested are furnished in good form and are found to be accurate and complete.

In determining the net income of a corporation for a given year on which it is subject to the excise tax under the Act of August 5, 1909, the corporation is entitled to a "reasonable allowance" for depreciation of its property.[1] Under such provision a mining corporation engaged in extracting ore from its mines is entitled to an allowance for depreciation equal to the value in place of the ore extracted and disposed of during the year.

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1 United States v. Nipissing Mines Co., 202 F. 803.

NOTICE:—This sheet must be filled out in the detail indicated by the headings.

18. Expenses for each of the past five years.	1910	1911	1912	1913	1914	Totals		REMARKS
A. General Expenses.								
1. General officers,								
2. Clerks and attendants,								
3. Supplies,								
4. Miscellaneous,								
5. Fire Insurance,								
6. Employers liability and prevention of accidents,								
7. Legal expenses,								
8. Taxes, (Include only mine, mine buildings, mining equipment and stock piles),								
Total,								
B. Interest, Depreciation and Capital account:								
1. Interest paid on bonds, mortgages, loans or other indebtedness,								
2. Depreciation, explain nature of this account under "remarks,"								
3. Sinking fund and retirement of bonds, loans, mortgages, etc.,								
Total,								
C. Mining, including loading on cars,								
1. Labor and superintendence,								
2. Materials, supplies and repairs,								
3. Power (if purchased or if separated in costs), electrical or steam,								
4. Miscellaneous. Explain under "Remarks,"								
Total,								
D. Transportation, etc.:								
1. Freight, Rail,								
Boat,								
2. Cargo Insurance,								
3. Bonus and Penalty Account,								
4. Analyses (Lower Lake Ports, etc.)								
Total,								
E. Exploration on this property not included in mine development, (Do not include general exploration outside the boundaries of this property),								
F. Development in the mine,								
G. Royalties and selling Commissions:								
1. Selling commissions,								
2. Royalty, not including excess minimum,								
3. Excess minimum royalty paid,								
4. Bonus, amount charged against each year's production,								
Total,								
H. Construction:								
1. Shafts,								
2. Machinery, power and maintenance of plant,								
3. Buildings, actually used in mining, not including miners' dwellings, hospitals, etc.								
4. Miners' cottages, club houses, hospitals and other buildings not used in mine operation,								
Total of expenses,								
19. Tons of ore shipped, sold and mined during each of last five years,								
(a) Sold,								
(b) Shipped,								
(c) Mined,								
20. Gross sum realized from sale of ore during each of last five years,								
21. Gross sum realized per ton from sale of ore during each of last five years,								
22. Include any remarks or explanations you may desire to add to the above,								

IRON MINES.

Name of mining company or operator of mine.

Name of mine.

ANNUAL REPORT

OF THE

Board of State Tax Commissioners

FOR THE YEAR ENDING DECEMBER 31, 1914.

Transmitted .... 1915.

Received by Board of State Tax Commissioners.

.... 1915.

Michigan form for reporting
mining costs and tonnage.

STATE OF .... } ss.
County of .... }

I, ..., do solemnly swear that I am the ....
(President, Secretary or General Manager.)

of the ...., that the foregoing report was made at and under my direction,
(Mine or mining company.)

and that the matters set forth therein are true and correct to the best of my knowledge and belief.

....

Subscribed and sworn to before me this .... day of .... 1915.

....

Notary Public .... County, State of Michigan.

My commission expires 191

NOTICE. 1. Do not include on this form reports for more than one mine or mining property which is operated as a unit. If you operate more than one mine or mining property use a separate form for each of them. Additional forms will be furnished on request.
2. Make reports covering the last five calendar years or for each part of that period as the mine was operated by you, irrespective of whether such mine is now owned, controlled or operated by you or by other parties.
3. Make out all reports as of date December 31, 1914.
4. All statements must be completed and all questions answered. If for any reason you are unable to complete statement for all items included herein, make explanation for such reason.
5. Any further information, not specifically requested on this sheet, which you may wish to have considered in the valuation of this property, should be submitted in a formal letter for purposes of record.

ANNUAL REPORT

OF

Name of Mine or Mining Property.

TO THE BOARD OF STATE TAX COMMISSIONERS

1. Location of this mine or mining property (Give exact description.)

County Township No. and Range Section, etc.

(a) Total acres —

(b) Send plat or sketch showing boundaries of property, including irregular fractions, city lots, etc.

(c) Name of Assessing District. (If property is included in more than one assessing district so indicate on sketch.)

2. Name of Company:

Mail, address of home office:

Mail, address of mine office:

Name and mail address of President,

Secretary,

Treasurer,

General Manager,

Superintendent,

General Counsel.

6. Average number of men employed in 1914

7. Gross total of shipments from this mine to December 31, 1914. Long tons.

8. Stock of ore on hand at the mine December 31, 1914. Long tons.

9. Average cargo analysis of ore shipped in 1914. (If none, so state.)

Grades of Ore. Give trade names.		Iron.	Phos	Silica.	Mang.	Alum.	Lime.	Mag.	Sulphur.	Loss by Ig'n.	Moist.
1	Dried										
	Natural										
2	Dried										
	Natural										
3	Dried										
	Natural										
4	Dried										
	Natural										

10. (a) What is your estimate of the total tonnage of the various grades of ore in this mine above the bottom level?

(b) What cubic feet per ton do you allow for each grade? How determined?

11. What is your estimate of the total tonnage of ore in this property below the bottom level?

(b) What number of cubic feet per ton do you allow for each grade?

12. Vertical depth of bottom level? Depth on dip of ore body?

13. Area of ore on bottom level in square feet?

14. Accompany this report with mine maps and plats.

1. Showing relation of known ore bodies to property lines. IMPORTANT.

2. Level maps showing area of ore and analyses or grades of ore on each level.

3. Such cross sections, longitudinal sections, drill hole records, etc., as will clearly illustrate with the level maps the shape, dimensions and general characteristics of the ore bodies and your methods of figuring tonnage.

4. *All maps and illustrations must be signed and dated December 31, 1914.*

15. What is the full total annual hoisting capacity of your plant. Tons?

16. Total number of shifts (8 hours) worked during past year?

17. How many days idle during past year?

Explain cause of idleness.

Michigan form for reporting tonnage of iron ore in stock piles.

Plate B

SUPPLEMENTARY

ANNUAL REPORT

OF

....
Name of Mine or Mining Property.

TO THE BOARD OF STATE TAX COMMISSIONERS

MICHIGAN.

Statement of tonnage and value of iron ore in stock at

Mine...191.........
Date

GRADES OF ORE. Give trade name.	TONS.	VALUE.* F. O. B. Mine.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

* For the purpose of this report the value of iron ore F. O. B. mine is defined as last year's Lake Erie price, less all charges for transportation, selling, loading, cargo insurance, cargo shrinkage and analyses at lower lake ports.

STATE OF .... } ss.
County of .... }

I, ..., *do solemnly swear that I am the*................................
(President, Secretary or General Manager.)

of the ...., *that the foregoing report was made at and under my*
(Mine or mining company.)

direction, and that the matters set forth therein are true and correct to the best of my knowledge and belief.

....

Subscribed and sworn to before me this .... *day of* *191*

....

Notary Public ....*County, State of Michigan.*

My commission expires ....*191*.........

Michigan form for making a permanent record of costs and tonnage.

Plate C

NAME OF MINE ______ OPERATOR ______ ASSESSING DISTRICT ______ COUNTY OF ______, MICHIGAN. PAGE ______

	PERIOD COVERED BY OPERATOR'S REPORT	APPRAISER OF MINES	SUMMARY OF EXPENDITURES																		AVERAGE RECEIPTS FROM SALE OF ORE	PROFIT+ LOSS−	BASE VALUE	ASSESSED VALUE	REMARKS	
			ADMINISTRATION	FIRE INSURANCE	EMPLOYER'S LIABILITY	LEGAL EXPENSE	TAXES	INTEREST	DEPRECIATION	CAPITAL ACCOUNT	MINING	TRANSPORTATION	EXPLORATION	DEVELOPMENT	CONSTRUCTION	ROYALTY	SELLING COMMISSION			TOTAL EXPENSES						
1																										1
2																										2
3																										3
4																										4
5																										5
6																										6
7																										7
8																										8
9																										9
10																										10

	PERIOD	TOTAL PROFIT (INCLUDING ROYALTY AND DEPRECIATION)	TOTAL OPERATOR'S PROFIT (EXCLUDING ROYALTY, DEPRECIATION, AND TAXES)	TOTAL PROFIT PER TON	OPERATOR'S PROFIT PER TON	OPERATING PROFIT (INCLUDING TAXES, ROYALTY AND DEPRECIATION)	OPERATING PROFIT PER TON (INCLUDING TAXES)	TOTAL TAXES	TAXES PER TON MINED	RATIO OF TAXES TO OPERATING PROFIT	YEAR	TOTAL TAXES PAID	TAXES PER TON MINED	TAXES PER TON SHIPPED	AVERAGE NUMBER OF MEN EMPLOYED	TONS MINED PER MAN	DATA OF BOTTOM LEVEL			TOTAL RESERVES OF DATE DEC. 31				
																				BY COMPANY		BY APPRAISER		
																	DEPTH FEET	NAME OR NUMBER	AREA IN ORE SQ. FT.	DEVELOPED	PROSPECTIVE	DEVELOPED	PROSPECTIVE	
1																								1
2																								2
3																								3
4																								4
5																								5
6																								6
7																								7
8																								8
9																								9
10																								10

	YEAR	TONS MINED	TONS SHIPPED	GRAND TOTAL OF TONS SHIPPED (ALL YEARS) DEC. 31	TONNAGE FOR PERIOD OF 5 YEARS PRECEDING APPRAISAL						ESTIMATED FUTURE ANNUAL SHIPMENT	LIFE OF PROPERTY BY APPRAISER	TONNAGE FACTOR CU. FT. PER TON	ALLOWANCE FOR HAZARDS %	APPRAISALS					TOTAL ASSESSED VALUATION	
					TOTAL TONNAGE			AVERAGE ANNUAL TONNAGE													
					SOLD	SHIPPED	MINED	SOLD	SHIPPED	MINED					REALTY, PERSONALTY.	VALUATION RECOMMENDED BY APPRAISER	VALUATION BY BOARD OF STATE TAX COMMISSIONERS	VALUATION AS REVIEWED	ASSESSED VALUATION		
1															MINE ORE IN STOCK						1
2															MINE ORE IN STOCK						2
3															MINE ORE IN STOCK						3
4															MINE ORE IN STOCK						4
5															MINE ORE IN STOCK						5
6															MINE ORE IN STOCK						6
7															MINE ORE IN STOCK						7
8															MINE ORE IN STOCK						8
9															MINE ORE IN STOCK						9
10															MINE ORE IN STOCK						10

NAME OF MINE ______

Redemption of Capital and Depreciation.

While the subject of depreciation[1] of mines had previously received consideration, the enactment of the Federal corporation excise tax and of the Federal income tax focused attention upon this phase of mining finance. Under the Federal income tax a deduction of not to exceed five percent of the gross value of the output at the mine may be permitted, but this depreciation must be based upon the actual cost of the properties containing the deposits. Unearned increment will not be considered in fixing the value on which depreciation shall be based. A general rearrangement of the system of accounting of some of the large companies has resulted from this ruling.[2]

---

1 Mr. Finlay uses the term "depreciation" as meaning current construction costs. (Finlay, Cost of mining. p 42.)

2 The following quotation, from the annual report for 1912 of the North Star Mines Co., illustrates this forcibly:

"The cost price of the mining property as at January 1, 1909, when the excise-tax law went into effect, was taken as $1,778,245. which distributed among 1,039,871 tons of ore, the amount estimated to have been contained in the mine at the beginning of the company's operations in 1899, gives a cost rate of $1.71 per ton. The application of this rate for the period up to January 1, 1909, on the 464,871 tons of ore then milled, reduced the cost value of the mining property to $983,316; while the continuation of the principle through the years 1909, 1910, 1911 and 1912, according to the tonnage milled, has reduced the cost value of the original property to $336,420 on which depreciation will continue at the rate of $1.71 per ton until the balance of cost price is extinguished. In making this adjustment of the original cost of the property as at January 1, 1909, the company has also written up the value of the property as at that date, to the extent of $1,136,684 to represent with the remaining cost value a fair estimate of the salable value of the mineral contents at January 1, 1909, according to data furnished by the company's engineers. The total amount charged against property account, therefore, on January 1, 1909, was $2,120,000, which has been reduced by subsequent allowances for depreciation as above stated, to the sum of $1,473,104. The company has been inclined to hold that the additional value written up to property account representing unearned increment accrued before the excise tax went into effect should also be subject to an allowance for depreciation; but the present ruling of the Treasury Department is not favorable to this view." note continued on next page

Corporations leasing oil or gas territory are permitted to base depreciation upon the cost of the lease and not upon the estimated value, in place, of the oil or gas. Operations carried on only upon a royalty basis may not make any deductions for depreciation.

An investigation of the records of a number of American mining companies demonstrated that sinking-funds are now being established in order to replace the capital invested.[1]

Another interesting complication is that resulting from the accounting methods of a large Nevada Corporation. The estimated average cost per ton of ore to the company for its entire tonnage was found to be $16.36. The factors employed in establishing this per-ton-unit were the mine property cost and the estimated total tonnage acquired at the time the mine was purchased. During the early years of the operations, the best ore was mined at a considerable profit. By the time the Federal excise corporation tax was levied practically all of the best grades of ore had been mined and operations were being continued on the poorer grades of ore which, however, were returning a good profit. According to the regulations of the Internal Revenue Department, the income of the company might be determined in part from apparent profits measured by the net recovery per ton in excess of the estimated cost per ton. The accounts of the company showed in 1912 that the net realization from operations was $11.75 per ton while the estimated cost per ton of all the ore at the time of purchasing the mine was $16.36. On this basis the amount written off for depreciation of the property during 1912 exceeded the net earnings by $2,043,888.61. During the calendar year of 1912, the dividends paid aggregated $5,694,636.80. Under the present Federal income tax, not more than five percent of the gross value of the ore may be charged to depreciation.

1 Contrast: "In the practical conduct of mines or mining companies, sinking-funds for amortization of capital are never established. In the vast majority of mines of the class (gold, silver, copper, lead, zinc, tin) under discussion, the ultimate duration of life is unknown, and therefore there is no basis upon which to formulate such a definite financial policy even were it desired. Were it possible to arrive at the annual sum to be set aside, the stockholders of the mining type would prefer to do their own reinvestment." Hoover, Principles of mining. p 44.

CHAPTER VIII.

The Tax Burden

In this chapter it is proposed to present the available data showing the amount of taxes paid by various types of mining properties and to compare the taxes paid per unit of product by mines operating under the different tax systems. The data used have been secured from tax commission and other official state reports, United States census reports, annual reports of mining companies, and by correspondence with tax officials and mining companies.

Tables I to XV inclusive are based upon data selected from Volume XI of the Thirteenth Census. They show the taxes paid in 1909 by the mines of the various states.

Table I includes data on the value of the product of the entire mining industry of each state; the total cost of securing this product, but not including taxes; the surplus above operating costs before taxes are paid; and the total amount of taxes paid by the mines in each state. From these data the ratio between the amount of taxes paid and the surplus above operating expenses has been calculated and the total amount of the taxes paid is given as a percentage of the surplus. For a number of the states the census statistics are not detailed enough to determine this percentage.

Under the assumption that the data as given are complete or at least representative, it is at once evident that the ratio of surplus and of gross earnings to taxes varies widely among the states. If the data for the twenty-one leading mining states are considered, it will be noted that the percentages of surplus paid as taxes range from 3.56 to 12.78, except for five states three of

TABLE I

Taxes paid in 1909 by the mining industry in the various states

	Value of product in dollars	Expenses not including taxes in dollars	Surplus before taxes are paid in dollars	Taxes paid	Percent of surplus paid in taxes
Ala.	$ 24,350,667	$ 22,320,812	$ 2,029,855	$ 185,578	9.17
Ariz.	34,217,651	33,265,197	952,454	454,119	47.68
Ark.	4,603,845	4,306,280	297,565	18,405	6.18
Calif.	63,382,454	60,624,729	2,757,725	626,456	22.80
Colo.	45,680,135	40,487,749	5,192,386	572,511	11.03
Conn.	1,375,765	1,140,834	234,931	17,657	7.52
Del.	516,213	507,313	8,900	1,624	18.25
Fla.	8,846,665	5,839,039	3,007,626	70,493	2.34
Ga.	2,874,595	2,051,000	823,595	13,236	1.60
Idaho	8,649,342	7,040,618	1,608,624	158,145	9.83
Ill.	76,658,974	68,574,344	8,084,630	287,641	3.56
Ind.	21,934,201	20,177,422	1,756,779	176,404	10.04
Ia.	13,877,781	13,706,842	170,939	43,855	25.66
Kan.	18,722,634	15,720,064	3,002,570	148,155	4.94
Ky.	12,100,075	11,649,234	450,841	96,354	21.37
La.	6,547,050	6,574,054	- 27,004	67,501	-----
Maine	2,056,063	1,860,100	195,963	16,241	8.29
Md.	5,782,045	4,917,598	864,447	88,559	10.25
Mass.	3,467,888	2,946,988	520,900	40,187	7.72
Mich.	67,714,479	50,775,178	16,939,301	2,000,314	11.81
Minn.	58,664,852	36,358,630	22,306,222	2,851,143	12.78
Mo.	31,667,525	27,585,678	4,081,847	159,321	3.90
Mont.	54,991,961	47,570,158	7,421,803	456,191	6.15
Neb.	322,517	259,635	62,882	414	.66
Nev.	23,271,597	17,279,729	5,991,868	257,476	4.30
N. H.	1,308,597	1,199,715	108,882	5,251	4.82
N. J.	8,347,501	4,460,586	3,886,915	47,354	1.22
New Mex.	5,587,744	5,513,013	74,731	40,410	54.09
N. Y.	13,334,975	9,830,143	3,504,832	174,389	4.98
N. Car.	1,358,617	Data	incomplete	------	----
N. Dak.	564,812	565,840	1,028	4,300	----
Ohio	63,767,112	53,064,983	10,702,129	856,871	8.01
Okla.	25,637,892	20,847,533	4,790,359	308,497	6.44
Ore.	1,191,512	Data	incomplete	------	----
Pa.	349,059,786	295,689,950	53,369,836	5,707,325	10.69
R. I.	897,606	670,534	227,072	3,343	1.50
So. Car.	1,252,792	1,024,040	228,752	10,783	4.71
So. Dak.	6,432,417	5,196,914	1,235,503	105,251	8.53
Tenn.	12,692,547	11,971,728	720,819	94,920	13.17
Texas	10,742,150	8,260,725	2,481,425	62,653	2.53
Utah	22,083,282	18,086,033	3,991,249	234,524	5.87
Vt.	8,221,323	6,804,836	1,416,487	72,645	5.13
Va.	8,795,646	8,816,955	Data Inc.	150,941	----
Wash.	10,537,556	8,571,208	1,966,348	103,356	5.26
W. Va.	76,287,889	70,687,505	5,600,384	971,405	17.35
Wis.	7,459,404	5,550,981	1,908,423	63,691	3.34
Wyoming	10,572,188	9,374,324	1,197,864	63,701	5.32

which are above this range and two below. Examining the list of sixteen still closer, it will be noted that nine of them range from 3.56 to 6.44 percent and seven from 8.01 to 12.78 percent. Each group includes some states employing the general property tax and states using a system of taxing output or earnings. The aggregate of the taxes paid in 1909 by all mines in the United States was $17,796,793, which was 1.44 percent of the reported value of the product and 8.33 percent of the surplus above operating expenses, not including taxes.

Taxes paid in the states by all mines producing the same mineral product.

In Table II are given similar data for the coal mines of the principal coal producing states. According to the census report the mines of seven of the states were operating at a loss; this conclusion is based upon the statement of operating expenses (including taxes) and of receipts from the sale of the product. In two additional states the percentage of surplus going into taxes was over forty, although the total tax paid was $234,021 for one state and $83,020 for the other. The range in percentage of surplus paid in taxes was from 3.06 for Washington to 53.89 for Ohio. In those states in which coal mines were being operated at a loss the tax burden was of course greater than the burden in Ohio.

Most of the coal mining states tax coal mines on an ad-valorem basis. Oklahoma taxes on output, but the census showed the Oklahoma mines to be operating at a loss. Utah imposes taxes upon net proceeds, and the mines in 1909 paid taxes amounting to 5.81 percent of the surplus above operating expenses. Montana, taxing in a similar manner, took 5.95 percent of the surplus.

TABLE II

Taxes paid by coal mines in 1909, by states

	Value of product	Expenses not including taxes	Surplus before taxes are paid	Taxes paid	Percent of surplus paid in taxes
Ala.	$ 18,459,433	$ 16,728,987	$ 1,730,446	$ 139,448	8.06
Ark.	3,508,590	3,620,276	- 111,686	10,250	----
Colo.	15,782,197	14,146,369	1,635,828	133,126	8.14
Ill.	53,030,545	51,525,922	1,504,623	171,582	11.40
Ind.	15,018,123	14,823,601	194,522	83,230	42.79
Ia.	12,682,106	12,781,252	- 99,146	38,484	-----
Kan.	9,835,614	9,759,903	75,711	18,394	24.29
Ky.	10,003,481	10,104,003	- 100,522	67,946	-----
Md.	4,483,137	3,621,504	621,504	79,726	12.83
Mich.	3,175,102	2,971,363	203,739	14,439	7.09
Mo.	5,881,034	5,708,816	182,218	6,911	3.79
Mont.	5,117,444	4,550,956	566,488	33,718	5.95
New Mex.	3,984,660	3,247,954	736,706	27,071	3.67
N. Dak.	563,212	519,145	44,067	4,265	9.68
Ohio	27,353,663	26,919,476	434,187	234,021	53.89
Okla.	6,185,078	6,498,852	- 313,774	36,589	-----
Oregon	225,026	235,604	- 10,578	2,642	-----
Pa. Bit.	147,466,417	125,816,488	21,649,929	2,344,575	10.83
Anth.	148,957,894	131,567,747	17,390,147	2,677,853	15.39
Tenn.	6,688,454	6,810,500	- 122,046	48,704	-----
Texas	3,136,004	2,799,739	336,265	12,340	3.67
Utah	4,111,987	3,162,396	949,591	55,183	5.81
Va.	4,988,328	5,169,688	- 181,360	117,232	----
Wash.	9,226,793	6,447,680	2,779,113	85,484	3.08
W. Va.	46,929,592	44,984,598	6,944,994	485,161	24.25
Wyoming	9,721,134	8,090,357	1,630,577	55,969	3.43

According to the statistics given, the anthracite industry of Pennsylvania paid 15.39 percent of the surplus in taxes,[1] while the bituminous mines paid 10.83 percent. Data for individual mines do not correspond closely with these results obtained from the census statistics.

Taxes paid by all of the copper mines in each of the important copper mining states are given in Table III. Owing to the fact that the mines of a number of important copper mining districts produce gold and silver as by-product, the statistics given

[1] The anthracite tax of two and one-half percent was not levied until 1913.

TABLE III

Taxes paid by copper mines in 1909, by states

	Value of product	Expenses not including taxes	Surplus before taxes are paid	Taxes paid	Percent of surplus paid in taxes
Ariz.	$31,614,116	$24,979,482	$6,634,634	$404,046	6.09
Calif.	10,104,373	7,701,231	2,403,142	48,003	2.02
Idaho	416,086	300,866	115,220	9,674	8.42
Mich.	30,165,443	23,508,650	6,656,793	950,821	14.28
Mont.	45,960,517	37,678,032	8,282,485	395,577	4.78
Nev.	4,946,369	2,294,347	2,652,022	26,789	1.01
New Mex.	360,394	----	-----	6,158	----
Tenn.		Data incomplete			
Utah	8,843,099		2,082,984	66,190	3.18

TABLE IV

Taxes paid by iron mines in 1909, by states

Ala.	4,939,149	4,587,233	351,916	37,051	10.53
Ga.	331,178	301,464	29,714	3,065	10.32
Ia.	Data	incomplete		-----	-----
Md.	44,341	40,524	3,817	582	15.25
Mich.	32,168,133	22,509,066	9,659,067	949,945	9.83
Minn.	57,076,135	34,641,579	22,434,556	2,653,794	11.83
Mo.	203,849	150,020	53,829	810	1.51
N. J.	1,651,091	1,314,565	336,526	7,350	2.18
N. Y.	3,095,023	2,066,776	1,028,247	51,491	5.01
Ohio	24,419	22,312	2,107	389	18.46
Pa.	789,296	358,168	431,128	19,415	4.51
Tenn.	815,181	827,315	- 12,134	6,863	----
Texas	Data	incomplete		-----	----
Utah	100,844	184,927	- 84,083	502	----
Va.	1,683,003	1,494,678	188,325	16,565	8.80
Wis.	2,972,584	1,751,885	1,220,699	46,710	3.83
Wyoming	Data	incomplete		-----	----

TABLE V

Taxes paid by gold and silver deep mines in 1909, by states

Ariz.	2,170,627	2,755,217	- 585,590	26,176	----
Calif.	9,690,956	9,344,688	346,268	122,656	35.43
Colo.	Data	incomplete			
Idaho	7,926,602	6,439,546	1,487,058	143,237	9.63
Mont.	3,002,328	2,978,814	23,514	17,309	73.63
Nev.	17,807,945	11,391,815	6,416,130	212,663	3.32
New Mex.	625,626	1,118,740	- 493,114	4,133	----
Oregon	468,732	575,697	- 106,965	4 027	----
S. Car.	8,550	31,311	- 22,761	624	----
S. Dak.	6,120,970	4,744,624	1,376,346	101,025	7.34
Utah	8,541,522	5,980,378	2,661,144	84,125	3.16
Wash.	156,227			2,855	----

TABLE VI

Taxes, Gold placers, 1909

	Value of product	Expenses not including taxes	Surplus before taxes are paid	Taxes paid	Percent of surplus paid in taxes
Calif.	$8,751,032	$5,517,855	$3,233,177	$91,000	2.82
Colo.	448,586	248,521	200,065	13,111	6.56
Ga.	19,633	18,931	702	1,100	----
Idaho	220,743	233,604	-12,861	4,882	----
Mont.	502,653	398,296	104,357	4,988	4.78
Nev.	62,652	80,852	-18,200	340	----
N. Car.	57,319	53,755	3,564	500	14.03
Oregon	159,002	117,559	41,443	3,238	7.81
Utah	4,178	4,060	118	100	----
Wash.	3,700	3,667	33	28	----

are not absolutely correct as showing the tax burden upon the copper produced. It is generally conceded that the copper mines of Michigan are assessed in excess of their actual value. The taxes paid in 1909 by the copper mines of Michigan were 14.28 percent of the net and 3.15 percent of the gross receipts. In none of the other important copper-producing states did the taxes amount to more than 6.1 percent of the net.

The percent of surplus paid in taxes by iron mines, as exhibited in Table IV does not vary much among the states producing important quantities of iron ore. Only three states produced more than four million tons per annum, namely, Minnesota, Michigan, and Alabama. The percentages paid in taxes in 1909 were 9.83, 11.83, and 10.53 respectively. The percentage paid by the iron mines in other states was as a rule much lower, as, New Jersey, 1.51 percent; New York, 5.01 percent; Pennsylvania, 4.51 percent; and Wisconsin, 3.83 percent.[1]

[1] Since 1909 the taxes of the iron mines in a number of these states have been increased greatly.

TABLE VII

Taxes paid by lead and zinc mines in 1909, by states

	Value of product	Expenses not including taxes	Surplus before taxes are paid	Taxes paid	Percent of surplus paid in taxes
Ark.	$ 34,810	$ 39,365	$ - 4,555	$ 218	-------
Colo.		Data incomplete			-------
Idaho		Data incomplete			-------
Ill.	292,453	212,905	79,548	232	.29
Ia.	6,779	Data incomplete		---	-------
Kan.	1,059,540	1,066,345	- 6,805	1,193	-------
Mo.	22,565,528	18,996,787	3,568,741	129,138	3.62
Mont.		Data incomplete			-------
Nev.	68,774	46,947	21,827	425	1.95
N. J.		Data incomplete			-------
New Mex.		Data incomplete			
Okla.	695,235	660,718	35,517	3,100	8.73
Tenn.		Data incomplete			
Utah		Data incomplete			
Wis.	1,989,907	1,611,795	378,112	4,308	1.14

TABLE VIII

Taxes paid in 1909 by petroleum and natural gas producers, by states

Ark.	126,400	155,262	- 28,862	1,768	-------
Calif.	29,310,335	24,933,418	4,376,917	276,669	6.32
Colo.	317,680	319,990	- 2,310	8,140	-------
Ill.	18,895,815	13,403,946	5,491,869	72,107	1.32
Ind.	3,224,619	2,410,223	814,396	73,362	9.01
Kan.	6,681,780	3,896,229	2,785,551	122,230	4.39
Ky.	892,281	555,420	336,861	22,488	6.65
La.		Data incomplete			
Mo.	11,455	14,734	- 3,279	52	-------
N. Y.	2,668,996	1,494,031	1,174,962	64,657	5.50
Ohio	29,620,959	20,647,897	8,973,062	585,542	6.53
Okla.	17,685,092	12,689,260	4,995,832	261,631	5.24
Pa.	39,197,475	21,447,544	17,719,931	521,436	2.94
Texas	6,391,313	4,242,605	2,148,708	43,958	2.05
W. Va.	28,188,087	24,528,735	3,659,352	476,343	12.15
Wyoming	18,929	156,377	- 137,448	284	-------

The census data on the deep gold and silver mines are not conclusive, as much gold and silver is produced as a by-product in the mining of copper and lead. Practically the only states for which the data can be used are South Dakota and California. In the former the percentage of the surplus paid in taxes was 7.34, while in the latter it was 35.43. The available data are given

TABLE IX

Taxes paid in 1909 by phosphate mines, by states

	Value of product	Expenses not including taxes	Surplus before taxes are paid	Taxes paid	Percent of surplus paid in taxes
Fla.	$8,488,801	$5,527,140	$2,961,661	$67,118	2.27
S. Car.	862,409	666,577	195,832	7,512	3.84
Tenn.	1,395,942	1,113,119	282,823	9,670	3.42

TABLE X

Taxes paid in 1909 by gypsum mines

Calif.	103,845	118,000	14,164	838	5.92
Colo.	Data incomplete				
Ia.	669,731	485,587	184,144	2,044	1.11
Kan.	318,678	284,264	34,414	2,935	8.53
Mich.	1,220,321	1,032,888	187,433	9,748	5.20
Nev.	278,243	263,881	14,362	2,517	17.53
N. Mex.	106,964	91,662	15,302	881	5.76
N. Y.	1,048,403	911,219	137,184	6,495	4.73
Okla.	417,594	397,128	20,466	4,592	22.43
Texas	387,739	358,478	29,261	2,609	8.92
Utah	81,493	62,223	19,270	313	1.62
Wyoming	132,719	114,661	18,058	258	1.43

in Table V. Statistics on gold placers are given in Table VI. California is the principal state in this group, the percentage of surplus in taxes in 1909 having been 2.82.

It is difficult to secure data for the lead and zinc industry by states as many mines produce lead and zinc with other metals. The only important lead and zinc states for which data were given were Wisconsin and Missouri. In the former 1.14 percent of the surplus was paid in taxes; in the latter, 3.62 percent.

Table VIII presents statistics for the petroleum and natural gas industries in the various states. In only one state was the percent of surplus paid in taxes over 9.01 percent. In West Virginia it was 12.15. In the eleven states for which data are available, the oil and gas wells in three states paid less than 3 percent in taxes, and six of the others paid between 4 and 7 percent.

In the states producing phosphate rock the percent of surplus paid in taxes ranged from 2.27 to 3.84. The available data are given in Table IX.

According to the census statistics given in Table X the percent of surplus paid in taxes in the gypsum mines varied widely among the states. In three states it was between 1 and 1.5 per cent; in four states, between 4.75 and 6 percent; in two states between 8.5 and 9 percent; in one state 17.53 and in another 22.43 percent. Data on the quarrying industry are given in Tables XI to XV inclusive.

TABLE XI

Taxes paid in 1909 by granite quarries, by states

	Value of product	Expenses not including taxes	Surplus before taxes are paid	Taxes paid	Percent of surplus paid in taxes
Calif.	$1,518,916	$1,216,361	$302, 555	$ 9,158	3.03
Colo.	78,865	79,058	- 193	383	----
Conn.	617,667	544,188	73, 479	3,317	4.53
Delaware	453,284	447,584	5, 700	1,149	20.16
Ga.	852,610	680,249	172,461	2,056	1.19
Idaho		Data incomplete			
Maine	1,761,801	1,584,420	177,381	13,263	7.47
Md.	556,476	480,505	75,971	2,619	3.45
Mass.	2,185,986	1,943,710	242,276	29,920	12.42
Minn.	672,904	465,847	207,057	2,006	.97
Mo.	155,717	123,563	32,154	1,237	3.85
Mont.		Data incomplete			
N.H.	1,205,811	1,048,559	157,252	4,526	2.88
N.J.	60,174	52,337	7,837	34	.43
N.Y.	444,435	382,934	61,501	2,161	3.51
N. Car.	766,931	755,541	11,390	2,918	.26
Okla.	60,289	59,502	787	455	57.81
Oregon	152,221	128,654	23,567	2.029	8.61
Pa.	603,089	485,354	117,735	4,545	3.86
R.I.	897,606	670,534	227,072	3,343	1.47
S. Car.	166,710	175,788	- 9,078	1,415	----
S. Dak.	23,188	18,971	4,217	3	----
Texas	135,221	111,458	23,763	486	2.05
Utah	28,625	20,800	7,825	47	.67
Vt.	2,829,522	2,291,208	538,314	14,714	2.73
Va.	473,344	368,113	105,231	2,046	1.95
Wash.	739,107	574,841	164,266	2,750	1.67
Wis.	1,433,105	1,281,689	151,416	6,225	4.11

TABLE XII

Taxes paid in 1909 by limestone quarries, by states

	Value of product	Expenses not including taxes	Surplus before taxes are paid	Taxes paid	Percent of surplus paid in taxes
Ala.	$ 599,353	$ 553,284	$ 146,069	$ 2,284	4.96
Ark.	112,468	103,830	8,638	701	8.12
Calif.	368,486	305,178	63,308	1,301	2.06
Colo.	331,408	314,141	17,267	1,801	10.43
Fla.	29,027	33,926	- 4,899	509	-----
Ga.	15,080	12,337	2,743	650	23.70
Ill.	3,977,359	2,861,237	1,116,122	21,702	1.94
Ind.	3,616,696	2,847,812	768,884	18,932	2.46
Ia.	499,665	369,658	130,007	2,679	2.06
Kan.	807,463	666,531	140,932	2,736	1.94
Ky.	851,875	635,325	216,450	3,062	1.41
Md.	143,258	49,735	93,523	374	.40
Mich.	795,286	674,447	120,839	10,879	9.01
Minn.	641,344	517,933	123,411	6,922	5.61
Mo.	2,027,902	1,642,270	385,632	10,900	2.83
Mont.	154,064	114,388	39,676	423	1.01
Neb.	322,517	259,635	62,882	414	.66
N. J.	180,604	163,688	16,916	189	6.12
N. Y.	2,656,142	2,092,718	563,424	18,934	3.36
Ohio	3,363,149	2,687,650	675,499	24,276	3.60
Okla.	487,883	378,512	109,371	1,151	1.05
Pa.	4,733,819	3,950,054	783,765	19,724	2.52
Tenn.	417,506	355,517	61,989	1,177	1.90
Tex.	312,413	246,570	65,843	710	1.08
Utah	190,825	157,588	33,237	524	1.58
Vt.	17,580	12,888	4,698	247	5.26
Va.	300,438	263,138	37,300	1,740	4.67
W. Va.	835,498	615,768	219,730	1,875	.85
Wis.	842,116	642,865	199,251	3,864	1.94
Wyoming	21,700	16,479	5,221	245	4.69

TABLE XIII

Taxes paid in 1909 by marble quarries in the leading states

Ga.	767,349	323,751	443,598	1,678	.38
Mass.	252,557	220,832	31,725	1,984	6.25
N.Y.	344,981	303,813	41,168	2,878	6.99
Tenn.	613,741	481,182	132,559	2,934	2.21
Vt.	3,277,651	2,547,573	730,078	50,660	6.94

TABLE XIV

Taxes paid in 1909 by sandstone quarries, by states

	Value of product	Expenses not including taxes	Surplus before taxes are paid	Taxes paid	Percent of surplus paid in taxes
Ala.	$ 65,687	$ 63,129	$ 2,558	$ 307	12.00
Ariz.	297,184	307,960	-10,776	811	-----
Ark.	78,160	46,867	31,293	306	.98
Calif.	289,579	260,193	29,386	3,158	10.74
Colo.	189,780	171,549	18,231	928	5.09
Conn.	191,760	112,090	79,670	11,278	14.16
Idaho	30,004	Data incomplete		-----	-----
Ill.	30,360	20,316	10,044	89	.89
Kansas	19,559	10,945	8,614	82	.95
Ky.	90,834	64,857	25,977	657	2.53
Md.	16,070	16,022	48	43	----
Mass.	270,002	268,359	1,643	2,563	----
Mich.		Data incomplete			----
Minn.		Data incomplete			----
Mo.	29,272	25,290	3,982	226	5.68
Mont.	74,593	73,357	1,236	514	41.59
N. J.	187,272	142,221	45,057	1,237	2.75
N. Y. S.S.	638	427,452	81,186	2,146	2.64
bluestone	054	689,603	220,451	1,987	.90
Ohio	306	2,018,916	379,390	6,764	1.82
Okla.	455	40,141	19,314	151	.78
Pa. S.S.	508	1,371,022	178,486	11,130	6.24
bluestone	120	476,534	179,586	2,897	1.61
S. Dak.	89,028	84,355	4,673	94	2.01
Texas	72,609	50,948	21,661	204	.94
Utah	71,485	66,714	4,771	30	.63
Va.		Data incomplete			----
Wash.	271,207	274,864	3,657	1,569	----
W. Va.	243,435	187,532	55,903	1,256	2.25
Wis.	200,236	139,684	60,552	1,078	1.78
Wyoming	22,855	16,216	6,639	245	3.69

TABLE XV

Taxes paid in 1909 by slate quarries

Maine	223,809	224,896	1,087	2,805	----
Md.	129,538	109,193	20,345	1,343	6.60
N.Y.	99,827	99,109	808	405	50.12
Pa.	3,492,026	3,386,985	105,041	20,119	19.16
Vt.	1,864,591	1,681,745	182,846	5,248	2.87
Va.	182,543	232,030	49,487	2,276	-----

Before passing to a consideration of the taxes paid by individual mines, attention may be directed to a comparison between the taxes paid in the same state by different divisions of the mineral industry.

The mineral industry of California paid as taxes 22.8 percent of the surplus. The copper mines paid 2.02 percent; the deep gold mines, 35.43 percent; the placer mines, 2.82 percent; the petroleum and natural gas wells, 6.32 percent; the granite quarries, 3.03 percent; the limestone quarries, 2.06 percent; and the sandstone quarries, 10.74 percent.

In Illinois, the mining industry paid taxes amounting to 3.56 percent of the surplus. The coal mines paid 8.14 percent; the petroleum and natural gas wells 1.32 percent; and the limestone quarries, 1.94 percent.

In Indiana, the entire mining industry paid 10.04 percent in taxes; the coal mines, 42.79 percent; the petroleum and natural gas wells, 9.01 percent; and the limestone quarries, 2.46 percent.

In Michigan, the mineral industry paid taxes amounting to 11.01 percent of the surplus. The coal mines paid 7.09 percent; the copper mines, 14.28 percent; the iron mines, 9.83 percent; the gypsum mines and plants, 5.20 percent; and the limestone quarries, 9.01 percent.

In Ohio, coal mines paid taxes amounting to 53.89 percent of the surplus; the petroleum and natural gas wells, 6.53 percent; while the mineral industry of the entire state averaged 8.01 percent

In West Virginia, the mineral industry paid in taxes 17.35 percent of the surplus. The coal mines paid 24.95 percent; the petroleum and natural gas wells, 12.15 percent; the limestone quarries 0.85 percent; and the sandstone quarries, 2.25 percent.

In Pennsylvania, the following may be noted:

	Percentage of surplus paid in taxes
All mineral industries, in 1909	10.69
Bituminous coal mines	10.83
Anthracite mines	15.39
Iron mines	4.51
Petroleum and natural gas wells	2.94
Granite quarries	3.86
Limestone quarries	2.52
Sandstone quarries	6.24
Slate quarries	19.16

On the basis of the foregoing data it is apparent that the petroleum and natural gas wells and some of the quarries did not pay taxes according to their ability when compared with some of the mines.

Taxes paid by mining companies

In many of the published reports of mines the amount of the taxes paid is combined with other expenses so that it has been impractical to secure data for these mines. In Tables XVI to XIX inclusive are grouped the taxes paid in recent years by copper, iron, coal, and gold and silver mining companies. Additional historical data, of interest for comparative purposes, are included in the text. In addition to the statistics of taxes paid, data showing the assessed valuation of mining property are included in order to show present tendencies in valuing mines and mineral lands.

TABLE XVI

Taxes paid by copper mining companies

Company	Date	Net value of product in M dollars	Taxes paid: Total	Per ton ore mined	Per lb. copper	Per cent net
Copper Queen[1]	1900		$ 13,158			
" "[2]	1912		248,109			
" "[3]	1913	$ 6,917M	349,774	$ .532		
Ray Consol.[2]	1912	a 1,814M	40,713	.026		
" "[3]	1913	a 2,497M		.003		
Miami[3]	1913	b				10.0
Atlantic[1]	1904	65M	6,592	.017	.0012	10.16
Baltic[1]	1908	1,004M	38,313	.050	.00216	3.82
"[1]	1912	758M	61,276	.0939	.005	8.08
Champion[1]	1908	959M	55,179	.0694	.0031	5.75
"[1]	1912	1,313M	62,199	.081	.0039	4.74
Trimountain[1]	1908	91M	37,903	.011	.0063	41.50
"[1]	1912	349M	40,681	.110	.0059	11.65
Quincy[1]	1912	1,105M		.048	.003	
Calumet & Hecla[1]	1912	4,614M			.006	9.0
Anaconda[4]	1912	11,447M	625,900	.137	.002	5.5
Amalgamated[4]	1903-13	83,053M	2,001,504			2.41
Nevada Doug.[4]	1912	c 47M	1,462	.0516		3.12
Chino[4]	1913	3,190M	43,409	.0223	.00086	1.36
Utah Copper[4]	1908	d 2,402M	7,588		.00012	

a Skinner E. N. and Plate, H. R. Mining costs of the world. 1915. p 29.

b Reported by Mr. J. P. Channing.

c For 4 months only.

d Assessed at $1,000,000.

1 General property tax.

2 Bullion tax.

3 Gross and net earnings tax.

4 Net proceeds tax.

TABLE XVII

Taxes paid by iron mines

Locality	Date	Taxes paid: Total paid	Per ton shipped	Per ton mined	Per cent net
Michigan[f]					
Gogebic range	1902-06		.06		
Marquette range	" "		.04		
Menominee "	" "		.05		
Gogebic range	1912		.10372	.13539	
" "	1913		.13999	.12523	
" "	1909-13			.11801	8.56
Iron county	1912		.06676	.07617	
" "	1913		.09907	.09675	
" "	1909-13			.06403	9.14
Menominee range	1912		.15652	.17200	
" "	1913		.15432	.16072	
" "	1909-13			.13555	17.83
Marquette "	1912		.12970	.14250	
" "	1913		.13066	.12095	
" "	1909-13			.11417	12.51
State	1912		.10807	.12644	
"	1913		.12709	.12144	
"	1909-13			.10647	10.95
Minnesota[f]					
Mesabi range	1902-06		.07		
Vermillion range	" "		.04		
State	1906	$ 179,272	.00707a		
"	1907	671,489	.023 a		
"	1908	604,264	.032 a		
"	1913	1,291,081	.036 a		
"	1914	1,314,538	.059 a		
"	1913	6,258,291	.1758 b		
"	1914		.23 c		
"	1906-14		.0284 d		
Wisconsin[f]	1914	17,820	e		5.205

a State taxes only
b State and local taxes
c State and local taxes, estimated
d Average of state taxes
e State income tax only
f General property tax

TABLE XVIII

Taxes paid by coal mining companies

Company	Date	Net value in M dollars	Taxes paid: Total	Taxes paid: Per ton	Taxes paid: Per cent net
Pennsylvania[d]					
Phila.& Read. C.&I.	1908			$.033	
Del. & Hudson	1912			.045	
Lehigh C. & N.	1904	1,466 a	$224,700	.1098 b	15.28
" "	1909	1,887 a	292,400	.0922 b	15.49
" "	1913	2,372 a	540,700	.125 b	22.80
Virginia[d]	1905-06			.011 c	

a Net credited to profit and loss.

b Based on all taxes paid by company.

c Reported by Finlay. Cost of mining. p 73.

d General property tax.

TABLE XIX

Taxes paid by gold and silver mining companies

State & Company	Date	Taxes paid: Total taxes	Per ton	Percent gross	Percent net
California[1]					
Gold Dredging	1910		.0018 a	1.58	4.04
Brunswick	1913	899.85	.059	.435	1.04
North Star	1913	28,293.	.267	2.36	5.12
Colorado[3]					
Iron Silver	1906	12,851.	.0892	1.17	2.49
Liberty Bell	1908		.10	1.31	6.58
" "	1911		.09	1.00	2.02 b
Tom Boy	1911		.16	2.38	6.83
" "	1913		.15	1.87	4.13 c
El Paso	1912			.66	2.27
Vindicator	1911	9,329.32	.485	1.44	3.80
Idaho[4]					
Bunker Hill & S.	1909	52,839	.153	1.68	4.82
" " " "	1911	36,993	.0845	1.12	3.33
Nevada[4]					
Goldfield	1913	41,370 d	.12)	1.06	1.92
"	1913	10,014 e	.03)		
"	1913	25,025 f	.07	.495	.90
Montana Tonopah	1911-12	7,392.21	.137	.95	2.66
Nevada Hills	1913		.062	.50	1.47
Nevada Wonder	1913	2,507.73	.065	.49	3.80
" "	1914	6,772.13	.145 g	1.55	3.80
Tonopah Belmont	1912	40,954.68	.354	1.25	2.28
" "	1913	10,487.06	.081	.36	1.38
" "	1914	39,206.79	.227	1.16	1.95
Tonopah Mining	1913	29,685.08	.171	1.05	1.87
" "	1914	40,811.07	.249	1.57	2.96
" "	1915	74,868.42g	.522	3.47	7.95
South Dakota[1]					
Homestake	1911	59,010.89	.0402	1.124	4.129h
"	1912	112,490.65	.0736	1.704	4.142h
"	1913	115,390.93	.0749	1.865	5.495h

1 General property tax. 2 Bullion tax. 3 Gross and net earnings tax. 4 Net proceeds tax. a Per cubic yard. b Net value per ton increased from $1.52 in 1908 to $4.45 in 1911. c Net value per ton increased from $2.67 in 1911 to $3.70 in 1913. d Bullion tax. e Property tax. f Federal income tax. g Increases due to change in assessing. h Based on dividends paid.

It has frequently been urged that many precious metal mines have not paid to the state a proper share of the profits. The following data are interesting as they show the amount of taxes paid and the ratio between taxes and earnings during the "bonanza" period in several of the western mining states.

According to Mr. J. Ross Browne[1] the Eureka Gold Mining Company, operating a gold placer in California, produced $147,529.50 between June 5, 1863 and August 11, 1864. Of this sum there was credited to dividends $66,000 and there remained a balance above taxes of $4,078.45. The taxes paid amounted to $108.40.

Data on two Nevada mines were published by Mr. Browne[2] and by Mr. James D. Hague.[3]

	1867	1868	1869
Savage Mining Company			
Tons produced	70,721	87,342	53,954
Total costs per ton including taxes	21.95	20.95	21.22
Profit per ton	19.99	19.89	13.75
Total taxes	$20,937.52	40,342.61	19,486.73
Taxes per ton	0.29	0.46	0.36
Percentage of profit to taxes	1.46	2.29	2.67
Hale and Norcross S. Mining Co.			
Tons produced	29,404	25,432	
Total yield	$1,355,220. 40		
Total cost	266,679. 18		
Net, above operating expenses	1,088,541. 22		
Total taxes	11,113. 90	12,404.04	
Taxes per ton	. 38	.49	
Percentage of net to taxes	1.021		

The Consolidated Virginia mines in the year 1875 produced bullion worth $16,957,538.99. Dividends amounting to $12,204,000 and taxes amounting to $152,795.13 were paid.[4] The taxes were 12.52 percent of the dividends.

1 Mineral resources of the United States. 1867-68. p 189.
2 " " " " Pacific Slope. p 375
3 Mining industry. Exploration of the 40th parallel. p 154
4 Raymond, R.W. Statistics of mines and mining in the states and territories west of the Rocky Mountains. 8th Ann. Report, Commissioner of mineral statistics. Washington. 1877. p 155.

Table XVI shows the taxes paid per ton of ore mined and per pound of copper, and, when the data are available, the percent of the net earnings paid in taxes.

Data are given in Table XVII for the average of the iron ranges of Minnesota and Michigan. Comparison may be made of the taxes per ton of ore mined and shipped and the percent of the net earnings paid for the taxes.

But few data are available on coal mines, and these are chiefly on anthracite mines. The available data are given in Table XVIII and are expressed principally as taxes per ton and as percentages of the net earnings paid for taxes.

Data on gold and silver mining companies are given in Table XIX. Most of the data are for the years since 1910 and therefore offer little basis for comparison with the census data in Tables IV and V. It has not been possible to determine the net value upon the same basis for all mines, but in general the figures given are accurate enough for comparison between the different systems of taxation.

Taken as a whole the data in Table XIX show that the precious metal mines, in the five states for which data are given, pay as taxes a smaller percentage of the net earnings or surplus above operating expenses than most mines of the same type operating under other systems of taxation. None of the Nevada mines for which data are given was paying more than 3.80 percent in taxes until 1914. In all of the other states listed, most mines are paying more than this.

Some of the typical gold mines may be compared. The North Star in California paid 5.12 percent in taxes in 1913, while the Homestake in South Dakota, also taxed under the general property tax, paid 5.495 percent. Operating under a net proceeds tax were the Tonopah Mining Company of Nevada which paid 2.96 per ton in 1914,[1] and the Bunker Hill and Sullivan of Idaho which paid 3.33 percent in 1911. From these typical illustrations it may be concluded that precious metal mines under the general property tax will probably pay more taxes than those taxed on the net earnings basis in use in several of the states.

Arizona. In 1911 the valuation of mining property as equalized by the Territorial Board of Equalization was as follows:

Productive patented mines, 526	$10,568,560.80
Improvements on productive patented mines	685,254.00
Non-productive patented mines, 81,031 acres	2,898,465.38
Improvements on non-productive patented mines	1,919,748.00
Patented mill-sites, 714,97 acres	28,667.58
Improvements on productive unpatented mines and claims	74,400.00
Improvements on non-productive mines and claims	526,666.50
Smelters, not included in improvements on mines and claims	2,540,569.00
All mining property, 93 percent of the total	19,242,331.36
All property subject to taxation	98,032,708.64
All mining property, 1912, 31.7 percent of total	42,145,084.49
All mining property, 1913, 37.2 percent of total	140,488,649.30
All mining property, 1914, 35.7 percent of total	134,247,752.59
All mining property, 1915	

1 The report of the Tonopah Mining Company for the year ended February 28, 1915, shows that the taxes paid during the previous fiscal year amounted to 7.95 percent of the net earnings.

Colorado. The assessed valuation returned by the county assessors of Colorado in 1913 and 1914 was as follows:

	1913	1914
Non-producing metalliferous mining claims	$13,796,749	$14,433,012
Improvements on " " "	8,929,872	9,048,223
Assessment on output from metalliferous mining claims	18,728,434	13,309,939
Total as returned by assessors	41,455,055	36,791,174
Total as corrected by the tax commission	46,042,067	41,468,531

The increase from $18,012,830 in 1912 to $46,042,067 in 1913 was due to the change in the law.[1] The metal mines in 1912 were assessed at 4.27 percent of the total for the state; in 1913, 3.52 percent, and in 1914, 3.17 percent.

In the fifteen principal metal mining counties of Colorado the mines have paid a large proportion of the taxes, as shown by the following statistics of assessed valuation:

In fifteen mining counties	1912	1913	1914
Assessed value of all mining property	$17,896,172	$43,546,803	$38,667,874
Assessed value of all other property	36,974,647	109,446,426	107,134,265

Coal land and improvements were returned by the county assessors of Colorado as follows:

	Acres	1913	Per acre	Acres	1914	Per acre
Prod. coal land	58,812	$7,239,380	$123.10	57,648	$7,103,355	$123.22
Non-productive coal land	205,413	8,806,892	42.68	210,015	9,131,503	43.48
Improvements on productive land		4,741,029			5,299,790	
Improvements on non-productive land		88,260			346,060	
Coal reserves	13,791	335,020	24.30	12,242	283,460	23.15

[1] See chapters III and IV.

Nevada. Statistics of taxes paid by Nevada mines are given in the accompanying table:

	1911*	1912 (9 mo.)	1913#
Bullion tax collected	$ 259,625.90	165,508.78	182,076.37
Tonnage	4,242,006.00		5,286,338.00
Value	32,515,030.39		32,701,522.47

Utah. According to the Report of the Utah State Board of Equalization[1] for 1913-14 the assessed value of the mining property in the state was as follows:

	1913	1914
Mining companies	$ 3,721,407	$ 3,990,283
Net proceeds	11,393,366	9,649,932
Mining claims		1,131,952
Total of all property	213,868,897	221,720,400

Virginia. The assessed value for 1913 of mineral lands in Virginia is shown by the following data:[2]

	Per acre	Total
Lands under development		
Value of land	$ 5.06	$ 640,323
Value of minerals	21.42	2,715,422
Value of improvements and machinery	49.80	6,323,651
Total	76.28	9,676,376
Lands not under development		
Value of land	2.84	6,409,530
Value of minerals	4.56	10,277,093
Value of improvements and machinery	.49	1,113,220
Total	7.89	17,799,843
Total value of land		7,049,853
Total value of minerals		12,992,515
Total value of improvements and machinery		7,433,871
Total		27,476,239

* Annual Report Bull. Tax Agent, 1912, p 50.

\# Report 1913-14, Nevada Tax Commission, p 21.

1 pp 26, 54, 57.

2 Report of Joint Committee on Tax Revision, Va., 1914, pp 31-33.

Wyoming. The state and county taxes on the output of the mines of Wyoming amounted to $62,878.48 in 1908 and to $30,094.51 in 1910. The mines in Sweetwater and Unita counties paid over $40,000 in 1908, the rate being approximately $19 per $1000; in 1910 the mines in these counties paid $27,000, the rate having been reduced to less than $8 in both counties. In 1913, the output tax of the mines of the state amounted to $47,734.95. The mines of the Sweetwater county were taxed at a rate of $8.88 and paid $22,164.14 of the total of $47,734.95.

CHAPTER IX

Suggested Methods of Taxation and Reforms

The prevailing methods of taxing mines have provoked much discussion and have frequently been criticised as being unjust and inefficient. From time to time there have been made many suggestions for the correction of apparent or imagined faults in the system. At the present time there seems to be generally a sincere desire, on the part of the mine owners and the tax officials alike, to discover the facts and to equalize the tax burden. In a number of the western states the mine operators have realized that within the local taxing district at least there is little to be gained by attempts at concealment of the physical condition of the mine and of the financial condition of the mining company. The value of the real estate in the mining districts usually varies direcly with the aggregate value of the mines, and as the mines become exhausted the value of the real estate diminishes unless there are other local industries that can support the population previously engaged in mining.

This interdependence of interests has been demonstrated recently in several mining districts in which the important mines have depreciated. When the mining companies asked the Boards of Equalization for a reduction in the assessed value of the mines, the other property owners demonstrated the fact that the depreciation suffered by the mining companies was no greater than that suffered by owners of dwellings and business houses and that a reduction of the assessed value of the mines would result in greatly increased taxes upon other property. It was shown that the mines were no less able to pay taxes than were the other property owners.

The criticisms of the methods of taxing and appraising mines have come principally from four classes of writers, namely, (1) mining engineers, (2) mine operators and officers, (3) state officers and tax commissions, and (4) economists.

The criticisms of mining engineers have usually been directed at the methods of appraising mines for taxation rather than at the system of taxation employed. The mining capitalist has frequently made a protest against increased assessment and changes in rates or in the system of taxation. In a number of instances protests have been filed against heavy expenditures within the local taxing district. The mine operator and the mine capitalist are probably no less public spirited than those who furnish the capital for other industries; in fact, in many of the western and of the Lake Superior mining districts, the mining companies pay most of the taxes and realize that they must continue to do so.[1]

The view point of the state officer is occasionally influenced by the demand made upon him for additional funds to meet the increased expenditure of the state. This criticism is not justified in general as, in most of the mining states, the members of the tax commissions and the other state officers have been broad-minded and fair in dealing with the mining industry, particularly when all property has been assessed at its true and full cash value. The mining companies have come to realize that they are more apt to secure justice by presenting all the facts in regard to the condition of their property, than if attempts are made to conceal part of the facts.

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[1] In Ishpeming, Michigan, the 1912 tax roll was $279,393 of which three mining companies paid 85 percent. The same condition prevails in Minnesota on the Mesabi iron range, and in some districts the mines pay more than 90 percent of the taxes.

The criticisms of a number of the economists who have written upon the taxation of mines have been founded upon and formulated from their personal conceptions of public rights in minerals and have not been directed at the method of taxation itself.

In presenting the suggestions and criticisms of the various contributors, an effort has been made to point out suggestions that can be (1) formulated into laws not conflicting with existing state constitutions; (2) that may be feasible in most of the mining states; (3) that may be practical and economical of administration; (4) that will apply to all types of mines without discrimination; and (5) that will cause mines to contribute a fair portion of the necessary public revenue.

Mining engineers and mine operators

As previously noted, most of the criticisms and suggestions made by mining engineers and geologists have been directed at the methods of appraisal rather than at the system or method of taxation. In this discussion attention will be directed particularly to the system or method of taxation and suggestions regarding details of appraisal will not be reviewed,[1] the purpose of this discussion being to show what the mining men themselves think of the systems of taxation and what changes they would advise.

Mr. James R. Finlay recommends that mining property be taxed for local purposes upon the value of the surface and of the equipment, and for state purposes upon the excess of receipts over

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1 See chapter VII on problems of administration.

expenditures. The combined taxes should not exceed the average levied on other forms of property. Undeveloped mineral lands should be valued exactly as unused real estate is valued, namely, at a fixed price per acre, "according to the prices fixed by mere trading. There is apparently no other basis".[1]

Mr. J. Parke Channing, in discussing the taxation of mines, said: "I am strongly of the opinion that a tax or valuation based upon the net or gross product or both is the most equitable."[2]

Mr. A. H. Rogers favors a "reconciliation of property and gross product taxes".[3]

Mr. Heath Steele has presented a program for the taxation of mines based upon apportioning to each industry in a state its share of the revenue to be raised by taxes. This burden should then be apportioned among the mines as follows:

First - A tax upon all surface lands owned, according to their use and value.

Second - After the surface tax has been adjusted, a rate should be determined which, when applied to the yearly profits, would make up the balance necessary.

Third - All buildings not used immediately in mining operations should be taxed at the same rate as other property.

Fourth - All plants, equipment, unmined ore, and untreated ore on hand should be exempt from taxation.

In determining profits, Mr. Steele would permit deductions from receipts and the value of the finished product on hand

1 Bull. Min. and Met. Soc. of America, 1912, V, 158.
2 Proc. Nat. Tax Assn., 1913, VII, 407.
3 Bull. Min. and Met. Soc. of America, 1912, V, 164.

as follows:

Actual expenditures for mining, transporting, and treating the ore; refining and selling the product; and depreciation of original cost of the plant and equipment. He would not allow for the purchase price of the mine "owing to the many ways in which this account could be figured".[1]

After discussing the general subject of mine taxation, Mr. H. M. Chance concludes, "Taxation for revenue only, without the incidental purpose of restraint or regulation, would certainly seem to be the only form of taxation that is just and equitable to interests affected."[2] He considers impractical the proposal to extend the Finlay system of appraisal to most of the metal mining districts owing to the cost of making the appraisal and to the nature of the ore deposits, but apparently favors a physical valuation or capitalization of earnings as the most practical method of appraising coal mines and lands.

William Griffith, an eminent mining engineer of the Pennsylvania anthracite fields, has suggested that, "Each ton of coal should be taxed once and once only. Perhaps the better way to accomplish this would be to eliminate the taxation of coal as real estate, except in a nominal way, and lay a tax upon each ton of coal as it is mined, as is being advocated by the Scranton Board of Trade."[3]

Mr. R. V. Norris has considered particularly the taxation of anthracite mines and lands in Pennsylvania. He objects to the

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1 Steele, Heath. Mine Taxation. Eng. and Min. Jour., 1914, XCVIII, 381.

2 Chance, H. M. Taxation of mining property. Proc. Amer. Min. Cong., 1913, XVI, 339.

3 Scranton Tribune Republican. June 2, 1913.

methods of taxation and of appraisal at present in use on the ground that they lead to the "rapid and uneconomical exhaustion of the mineral wealth of the country, and put a premium on premature and wasteful exploration." He then proposes the following program: "The proper method of taxation for all minerals appears to be a tax based on the value at the mine of each year's product at the local rate of taxation assessed for that particular year, including an assessment on surface lands, outside improvements and machinery, the value of which is readily ascertainable; but not including any valuation of mine openings, or inside improvements, which are incidental to the mining process and which after the exhaustion of the mineral are of no value."[1]

The proposals of Mr. E. B. Kirby and of Mr. R. B. Brinsmade are presented under the discussion of the single tax.[2]

Mr. R. C. Allen, State Geologist of Michigan, who is officially Mine Appraiser for the Michigan Board of State Tax Commissioners favors the general property tax and the appraisal of mines upon the ad valorem basis after the methods developed in Michigan.

Dr. C. K. Leith, who has had extensive experience in the appraisal of iron mines and lands was a member of the[3] Committee on Taxation of Mines and Mineral Lands appointed by the National Tax Association which favored the general property tax and careful appraisal.

Mr. W. L. Uglow in a recent bulletin of the Wisconsin

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1 Norris, R.V. The taxation of coal lands. Proc. Amer. Min. Cong. 1913, XVI, 331.

2 See p 287 .

3 This committee endorsed the system of appraisal now in use in the Lake Superior district and opposed gross and net methods of taxation. See p 282 .

Geological and Natural History Survey,[1] favors the use of a method of equating income with property valuations so that mining property may bear its fair share of the taxes. A factor is determined which when applied to the general property tax rate will give the proper rate to be levied upon the income of the mining property. This procedure is recommended particularly for short-lived mines that have relatively little ore in sight.

Professor J. Daniels in an address at the Washington State Tax Conference in 1914 favored "some form of nominal holding-tax on the land until it develops into a producing property and, when the mine reaches the active point of production, the value of that property as a going concern should be used as the annual basis of assessment of taxes.[2]

Professor M. Roberts in discussing the address by Professor Daniels said, "It seems difficult to avoid making use of the general property tax in some degree in taxing mining property. In an undeveloped district the holding-tax should be quite light. In developed districts and where there is regularity to the deposits it can be somewhat heavier."[3]

In a conference between representatives of Arizona mining companies and the members of the Arizona Tax Commission held October 29, 1912, the representatives of the mining companies made the following proposal:

1. That all patented mines be assessed per acre at the price paid to the United States Government therefor.

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[1] Uglow, W.L. A study of methods of mine valuation and assessment. Bull. XLI, Wis. Geol. and Nat. Hist. Survey. Madison, 1914.

[2] Daniels, J. Taxation of mineral lands. Bull. Univ. of Wash. Gen. Series, 84. August, 1914. p 88.

[3] *Ibid.*, p 89.

2. That all improvements upon said mines be assessed by the State Tax Commission at the same value as other property.

3. That the net earnings from said mines be ascertained and assessed at 100 percent of the true value thereof.

4. That in addition thereto all producing mines be assessed upon 12.5 percent of the gross product or yield thereof in value.[1]

State officers and tax commissioners

State officials and members of the tax commissions are frequently obliged to consider "policy and expediency" as well as the "canons of taxation". However, it may be assumed that the executive officers of the state are interested in administrative problems which have to do with productivity, economy, elasticity, and certainty of a revenue-producing system. In the administration of mine taxation in the various states employing tax commissions the problems peculiar to mine taxation have received special attention and from time to time the reports of the tax commissions have carried recommendations to the state legislatures. Following is a condensed statement of a number of these recommendations which have not been formulated into laws.

The Minnesota Tax Commission in 1902 regretted that the constitution of the state did not permit the enactment of a tonnage tax. In the opinion of the members of the Commission "a tonnage tax is the only appropriate means for the taxation of the output of mines".[2]

Again in 1908, the Minnesota Commission pointed out the desirability of a tonnage tax although at that time most of the

1 First Report, Arizona State Tax Com., 1912, p 63. The Arizona legislature enacted a law effective in 1913 and 1914, providing that producing mines be assessed at 400 percent of the net earnings plus 12.5 percent of the gross.

2 Report of Tax Commissioners, 1902, p 43.

members were apparently reconciled to the working of the general property tax. Mr. O. N. Hall filed a minority report opposing the endorsement of a tonnage tax by the Tax Commission.[1]

A tonnage tax is not favored now by the Minnesota Tax Commission as it is claimed that it would require a graduated tonnage rate, which would be more complicated than the system now in force. This graduated rate would be based upon the quality of the ore, cost of mining, etc. It probably would be more difficult to administer than the general property tax.

The Wisconsin Tax Commission in 1910 commented on the difficulty of assessing mineral land and said: "It would be more logical and tend to better administration if the lands were assessed without regard to the minerals, and the latter subjected to an occupation or privilege tax when extracted, or even included under the income tax".[2]

The message of the Governor of Wisconsin, January 12, 1911, contains practically the same statement. He suggested that the occupation tax should be proportionate to the value of the amount of ore removed.

A suggestion of the Wisconsin Tax Commission in 1915 was embodied in a bill to create Section 1053 of the Statutes providing for the valuation and assessment of lands containing deposits of lead and zinc. In general, the proposed plan of assessment was an attempt to equate the earnings of lead and zinc mines with the valuation of the property; this was to be done by multiplying the sum of the royalties paid and profits earned by two and four-tenths. The

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1 First Biennial Report, Minn. Tax Com., 1908, p 146.
2 Fifth Biennial Report, Wis. Tax Com., 1911, p 16.

sum so obtained was to constitute, for purposes of taxation, the full and true value of the lands.

It has been suggested by tax officials in Wisconsin that society might receive the greatest benefit from the mineral and other resources if economical development and use were made the prime object rather than possible revenue. Mine operators might be encouraged or forced to recover a maximum percentage of the mineral if wasteful methods were penalized by taxation.[1]

In discussing the separation of state and local revenues the Commission of Inquiry into Taxation in Michigan in 1911 advised that "mining corporations should not, through separation, be exempted from the burden of state taxation, and a part of the state revenues should be realized from the mines". The commission recommended further that, in the case of separation, "for the present an amount equal to one-ninth of the demands of the state for general expenses be imposed upon mining property".[2]

Mr. C. M. Zander, a member of the Arizona State Tax Commission, favors taxing mines as other property upon an ad valorem basis. He believes the Michigan system can be adapted and declares the only administrative difficulty in the West to be "lack of power by a central authority. As soon as some western state delegates that power a great advance can be looked for."[3]

On the other hand his associate, Mr. P. J. Miller, advocates as strongly the taxation of mines upon the basis of gross and

[1] Compare with L. C. Gray's statement. Quart. Jour. Econ., 1914, XXVIII, 486; Uglow, W.L. Bull. XLI, Wisconsin Geol. and Nat. Hist. Survey, 46; and Report of Committee on Taxation of Mines, Proc. Nat. Tax Assn., 1913, VII, 387.

[2] Report of Commission of Inquiry into Taxation. Lansing, 1911. p 36.

[3] Zander, C.M. Taxation of metalliferous mines. Proc. Nat. Tax Assn., 1914, VIII, 338.

net earnings. His recommendations in the report of the Tax Commissioners were as follows:

"That a specific mine tax law be enacted similar to the one passed by the last legislature except that the net proceeds alone be made the basic factor and increasing the multiple from four to whatever figure the legislature may think proper.

"That by eliminating the tax on the gross proceeds and fixing a minimum net of twenty-five thousand dollars for the producing mines will put the larger properties in a class by themselves and tend for equity in assessments between them. This will also prevent properties that are valuable but are making but a small net, from being assessed at almost nothing, as was possible under the present law.

"That all surface ground of mining claims lying within the corporate limits of cities or towns, whether used for mining or other purposes, be assessed as other real estate is assessed and taxed in said cities or towns.

"That all smelters, mills, and reduction works owned and used in connection with any producing mine be included in the value of the mine.

"That in case a producing mine closes down for a period of three months or more on account of litigation, on account of accident, or on account of the depreciation of the value of its product below the cost of production or for any other reason, the State Tax Commission be given power to assess that mine by finding the average of its net for the past five years and multiply that sum by the factor provided in the mine tax law, the resulting amount to be the assessable value of said mine.

"That a section should be included in the mine tax law empowering the State Tax Commission to prescribe a uniform system of accounting for all producing mines in order that the 'net proceeds' be arrived at uniformly."[1]

Mr. J. B. Phillips stated that the Colorado Tax Commission found it necessary to recommend to the legislature the bill changing the assessment of mines, making the assessment on fifty percent of the gross and all of the net from metalliferous mines. This was due to a decision of the Supreme Court defining "gross" which resulted in the reduction of the valuation of the mines of the state by between eight and nine million dollars.[2]

Honorable R. E. Sloan, formerly Governor of Arizona, in an address made before the Conference of Governors in 1910, favored taxing the gross and not the net proceeds, as being less inquisitorial and as eliminating all questions of good or bad management.[3]

The Nevada Bullion Tax Agent in 1912 favored a graduated tax on gross output, rather than a tax on net output.[4]

Mr. C. S. Patterson, of the Utah Board of Commissioners on Revenue and Taxation, recommended in 1912 that mines in Utah be classified and that a higher and graduated rate be applied to property of this class taxed upon net proceeds.[5]

Mr. T. C. Townsend, formerly identified with the work of the West Virginia Tax Commission, recommended a production tax for oil and gas as follows:

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1 Miller, P.V. Assessment of mines. Proc. Nat. Tax Assn, 1913, VII, 394. Eng. and Min. Jour., 1913, XCVI, 969.

2 Phillips, J.B. Legislative and administrative problems in Colorado. Proc. Nat Tax Assn, 1914, VIII, 96.

3 Proc. Second Meeting of Governors, Washington, 1910. p 146.

4 Nevada State License and Bullion Tax Agent. Report for 1912, p 8.

5 Patterson, C.S. Rep. Spec. Tax Com., of Utah. Proc. Nat. Tax Assn. 1912, VI, 432.

"The most feasible, scientific and common-sense method of taxing oil is to impose the production tax. The State of West Virginia, as well as all other states and countries that produce oil, ought to come to this tax. The amount should not be great, perhaps one-third to one-half cent per barrel,- and it should be used exlusively for the support of the State government. In oil-producing states this tax would aid largely in bringing about a divorcement of state and local revenues, an end much desired in the tax system of any state. It is thought a production tax could be imposed in most, if not all, states without encountering constitutional barriers.[1]

"A production tax on natural gas is the only feasible method of taxing it under a constitution like that of West Virginia, and the only method that can be devised that will compel this class of property to bear its equal share of the burdens of taxation."[2]

In outlining a model system of state and local taxation, Mr. Lawson Purdy proposed that mineral rights should be included among the subjects of state taxation because, "their value does not depend upon local expenditure, or the value of the local government or on the extent of local population. Deposits of coal, iron, and other minerals owe their value to the demand for their use by the country as a whole."[3] He held that the state should receive from rich and profitable mineral deposits a revenue greater than that which would be secured if the state levy were apportioned according to local expenditures. Therefore, the State should tax mineral rights directly.

1 Proc. Nat. Tax Assn, 1908, II, 407.
2 Ibid., II, 409.
3 Purdy, Lawson. Outline of a model system of state and local taxation. Proc. Nat. Tax Assn, 1907, I, 63.

"Ordinarily a state tax on mineral rights should not be imposed upon the site value of the land, because the surface can be used for agriculture or other purposes, while mining is going on beneath the surface. In some cases the deposits of ore are so close to the surface that the operation of mining the ore is like quarrying stone. In this case it might not be possible to allow the local community to tax the site at all, and provision might be made for a division of the proceeds of a tax on the mineral rights. With the exception of such mines as are practically quarries, the tax for state purposes could be imposed on the mineral rights alone, and the local tax districts could be allowed to tax the surface for local purposes."

The Committee on Taxation of Mines and Mineral Lands in its report to the National Tax Association, in 1913, recommended (1) the valuation of explored and developed mines as other property, and (2) indorsed in general the system employed in Michigan, Minnesota, and Wisconsin. The Committee opposed (1) gross and net methods of taxation and (2) taxes on the basis of market value of stocks.[1]

In 1912 an amendment to the Louisiana Constitution was proposed which would have permitted the taxation of various mineral properties on the basis of the output. All operating mines of sulphur, salt, or other minerals, all oil or gas wells, all stone quarries, sand, gravel and shell pits were to have been taxed a percentage of the gross value of the product at the mouth of the mine, well, quarry, or pit. This percentage proposed was not to exceed five percent for sulphur, three percent for salt, two and one-half percent for oil and gas, and two percent for rock and other minerals inclusive

[1] Proc. Nat. Tax Assn., 1913, VII, 387.

of gravel, sand, and shells. All real and personal property, except machinery, tools and implements absolutely essential to the operation of any mine, oil or gas well, etc., and except the products themselves while in the hands of the producer, were to have been assessed and taxed locally.[1] The amendment was not adopted.

Economists

Mr. L. C. Gray holds that, "a tax on the mine will in no way affect the supply of the product placed on the market at present" but it may disturb the relation between present and future. Much depends on the manner in which the tax is applied. An annual tax on the value of the mine, provided the tax is expected to be permanent, "will increase the tendency for the mine owner to remove the coal in the present rather than in the future. This will be true even if all so-called rent and a part of the royalty is taken by the tax. Far from preventing the mine from being utilized, it will actually increase the amount of coal placed on the market; and if demand is constant, will probably lower the price". A tax upon the annual surplus will not have this effect but will "take a certain share of each dollar of surplus whenever it appears".[2] A tonnage tax at a fixed amount per ton will probably encourage a slower rate of utilization, depending upon the present value of the product.

Mr. Frank L. McVey in an address on "A rational system of taxing natural resources" said, "Without question, the general property tax, as it now stands upon the statute books of the different states, does not meet in any one sense of the term the general eco-

[1] Hart, W.O. Tax reform in Louisiana. Proc. Nat. Tax Assn, 1912, VI, 77.

[2] Gray, L.C. Rent under the assumption of exhaustibility. Quart. Jour. Econ., 1914, XXVIII, 466.

nomic conditions and the special needs of mining. The same principle which is applied in the case of timber lands, namely, the taxation of the product, should be applied to the taxation of mineral properties. There is no question that the easiest way, and the most satisfactory and acceptable way to all concerned,is a tonnage tax, varying possibly with the character of the ore and the cost of mining, but always depending for the rate and the amount upon the ore that has been mined. The taxation of the surface upon some such basis as that seen in the case of the timber tax will provide a regular income supplemented by the amount of the tonnage taxes. The real essence of the tonnage tax lies in the fact that value found in the ground is distinctly a product of nature, which an ad valorem tax can not recognize, and in consequence the state's right to a share of the value of the earth's products, together with the diminishing value element involved, is overlooked".[1]

It has been suggested that the tax rates upon certain kinds of mineral properties shall be progressive. Professor F. W. Taussig in making a general statement regarding progressive taxation says it "is not practicable on the basis of the kind of income. It is susceptible of application, on a wide scale, only with reference to the amount of the income".[2]

In discussing unearned increment as applied to mines, Professor Taussig suggested that "it is difficult to see how any other method than that of long leases could secure the desired ends,- the effective utilization of resources and the conservance of the public's fundamental equity. The uncertainties of mining are such

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[1] Quart. Jour., Univ. of North Dakota, Jan., 1911, pp 146-151.

[2] Taussig, F.W. Principles of economics. Vol. II, p 494.

that any recurrent carving out of economic rent is quite impracticable. The only feasible policy would be that of allowing private enterprise to take its risks and reap its rewards over a stated period. No doubt the possessor or tenant during his term would be tempted to work the mine to the utmost and perhaps exhaust it; a difficulty possibly to be met by requiring the payment of a progressive royalty as a large output was reached. Here as elsewhere, occasional great gains to lucky or shrewd investors must be accepted with equanimity; a policy too grasping overreaches itself".[1]

From the foregoing expressions of Professor Taussig it is apparent that a policy of distinguishing the income of mines from income derived from other sources and taxing the mining income under progressive rates is a questionable practice. Similarly, the suggestion that mines be singled out and taxed upon unearned increment is not favored by Professor Taussig and a number of other economists.

In discussing the fiscal policy and mineral deposits, Professor H. C. Adams says, "Mines that are widely spread and easily discovered may be treated like the property of ordinary industries. No special financial policy is required for minerals like coal, iron, or salt. Mines, on the other hand, which form the basis of a natural monopoly should be handed over to private enterprise for development, but they should at the same time be recognized as a fit object for special[2] and peculiar taxation".[3]

A corporation tax is favored by Professor Adams in order to reach such differential profit as may result from natural monopoly or specially rich deposits.[4] The basis of this taxation should

1 Ibid., Vol. II, p 101.

2 Such discriminatory legislation would be unconstitutional in most of the important mining states.

3 Adams, H.C. The science of finance. New York, 1912. p 239.

4 Ibid. p 452.

be the royalty which "particularizes itself" with the mineral industry.[1] Natural monopolies such as mines, should be the object of state taxation.[2]

In discussing the division between state and local taxation, Professor I. A. Loos favors state taxation of mineral rights. "On the basis of economic analysis, as well as in the light of historical public policy, the community has a large claim upon mineral deposits."[3] He suggests that in the states in which important mineral deposits are situated there be undertaken "legal and constitutional methods of approach to this source of revenue".

Professor O. D. Skelton, of Queen's University, Kingston, Ontario, advises that mineral resources should be reserved for state rather than local taxation.[4] If adequate taxes were imposed on mines by a municipality, more revenue would often be raised than is legitimately required. Regarding the appraisal of mining property he comments as follows: "Any estimate of the value of the minerals in the ground must, it is felt, contain a large element of guess-work, diligent and scientific guess-work it may be, but guess-work still." He therefore prefers a tax on the output or net profit on account of its greater certainty. In his opinion a satisfactory and more or less uniform system of accounting can be enforced so that the principal objections to a net profits tax can be overcome.

Single Tax Program

It is claimed by the advocates of the single tax that tax-

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1 _Ibid._, p 464.

2 _Ibid._, p 501.

3 Loos, I.A. The division between state and local taxation. Proc. Nat. Tax Assn, 1908, II, 66.

4 Skelton, O.D. The taxation of mineral resources in Canada. Proc. Nat. Tax Assn, 1908, II, 385.

ation of land values, "will open up the mineral resources of the country to capital and labor. By stimulating the demand for labor and undermining the power of monopoly to hold mineral lands out of use, or close mines, it will lead to an enhancement of the wage rate. By stimulating production and operating to reduce royalties, it will, at the expense of the monopolist, cheapen the commodity produced. It will furnish the state with revenue, with which to unburden industry". An illustration is cited of an English coal mine which mined 846,642 tons of coal in a given year. The company paid taxes amounting to $27,490. The land owner who received the royalties paid $4,250 in income tax. If the royalties be capitalized at 4 percent and taxed at the prevalent rate, the tax would be $17,200 instead of $4,250. It is claimed that "such an impost would place the state in a position to substantially relieve the mining industry of present rate burdens, thus giving a further stimulus to legitimate enterprise".[1]

The single tax program in America is presented in the writings of Mr. E. B. Kirby[2] and Mr. R. B. Brinsmade.[3] The principal suggestion of this program is that a separate tax levy should be made on mineral land and improvements, and that the former should then be increased and the latter diminished until speculative holders are obliged either to sell or to operate. Mr. Kirby objects to the plan of taxing successful mining operations and exempting unprofitable mines and points out the effects of applying the same principle to other forms of property in those states in which mines are taxed

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1 Chomley, C.H. and Outhwaite, R.L. Land values taxation in theory and practice. London, 1909. Chap. IX, p 89.
2 Kirby, E.B. Principles of mine taxation. Eng. and Min. Jour., 1911, XCII., 853, 928. Public, 1913, XVI, 713.
3 Brinsmade, R.B. Natural taxation of mining land. Mining World, 1909, XXXI, 1023. Discussion of J.R.Finlay's paper on valuation of iron mines. Trans. Amer. Inst. Min. Engrs., 1914, XLV, 324.

on this basis. In discussing the problem of valuing mines for taxation he notes that "value is a market fact, and not what some one thinks it ought to be". He suggests that the most important means of securing accuracy and fairness in assessment of mines is publicity, "letting every man know what his neighbor pays".

"The scientific principle which is now forcing its way into the taxation systems of civilized countries is that the burden must be carried not by productive industry, as at present, but by natural resources. The effect of this upon mining would be to stimulate the active operations of exploration, discovery, and production and to discourage speculative holding of unused mineral land."[1] The taxes upon operating mines would be greatly reduced and eventually all taxes upon machinery, equipment, improvements, or production would cease and the only tax remaining would be that upon the value of the land on which the mines are located. In the opinion of Mr. Kirby, this will encourage prospecting and the development and operation of mines. The extent of the speculative holdings of mineral land is so great that it is believed the state would secure adequate revenue by shifting the tax burden to such lands.

Similar ideas have been advanced by Mr. Brinsmade and the suggestion is made by him that mine operators should assess their own property with the understanding that the state may purchase it within a year at the assessed value.

Mr. C. B. Fillebrown urges that monopolies and special privileges should properly share with land values the burden of taxation and cites particularly natural resources privately owned, such as gold, silver, copper, iron, and coal mines, and oil fields.[2] Similar views are held by Mr. T. G. Shearman.[3]

1 Kirby, E.B. Public, XVI, 714. 2 Fillebrown, C.B. The A.B.C. of taxation. N.Y. 1909. 3 Shearman, T.G. Natural taxation. N.Y. 1898.

Conclusions

It is evident that the taxation of mines as conducted in several states has aimed at more than the raising of revenue for immediate public needs. The conclusions presented herewith have been reached under the presumption that taxes upon mines are levied for the single purpose of providing public revenue. However important government regulation of the use of mineral resources may be, it has not been considered as the controlling purpose or the purpose that makes taxation necessary.

It has been deemed inadvisable in this study to attempt to present a program of mine taxation that would not fit into the general methods of taxation now employed in the states, for it is possible that the system of taxation that is ideal from the viewpoint of the mining industry would be entirely impractical for other industries or unconstitutional in many of the states.

It is difficult to answer the general question "Are mines paying their share of the taxes?" It has been pointed out in specific instances that from the data available it may be inferred that certain types of mining property are not paying their share of the taxes collected for state and local purposes.[1] In most of the important petroleum producing states the petroleum wells are paying in taxes a smaller percentage of their earnings than are the coal and ore mines.[2] In a number of the western states the percentage of net earnings paid in taxes by the precious metal mines is much less than the percentage paid by the Lake Superior copper and iron mines.

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[1] See p 257.

[2] A notable exception is West Virginia. See p 257.

The writer is of the opinion that in general mines are not overtaxed, although undoubtedly there are numerous examples of individual mines that are taxed unjustly for a time.

It may be timely to note that as a rule the general fiscal policy in the various states seems to be based upon the annual needs and that there are levied annually rates sufficient to meet the expenditures (including interest on bonds) for the current year. According to the general plan, only so much revenue is raised during a particular year as is required for that year. This fiscal plan does not fit in well with what seems to be a convenient and just plan of mine taxation, namely, that the aggregate taxes paid by a mine during its life should be a fair share of the total earnings of the mine and at the same time a fair share of the total taxes raised during the same period for state and local purposes. During the most profitable years of the mine's operations the total amount of revenue required may be small and the amount of taxes paid by the mine may be proportionately small; while, in the unprofitable years of the mine's operations, and when therefore its appraised valuation is low, the amount of revenue required may be large. It would be just to consider the entire life of a mine and in some way to adjust the tax burden to the varying needs of the community. Some of the distinctive characteristics of mining would thus be recognized. The system of taxing property in general upon an ad valorem basis fails to meet this situation, for, as has been noted previously, a mine may partially escape taxation by increasing the annual output and rapidly exhausting the mineral deposit so that the number of years during which the mine is subject to taxation is reduced.

As previously noted the constitutions of some of the states limit or prescribe the method of taxation. While the constitutions of several states have been amended in order to permit special methods of taxing mines, the difficulty of amending a state constitution is so great in some instances that a program of taxing mines that would require the amending of a state constitution is not presented.

It is suggested in general that the tax system should be designed so that:

1. The taxes levied upon the mining industry are no heavier than those levied upon other industries.

2. The methods of administration are no more inquisitorial in relation to mining than in relation to other industries.

3. Systematic exploration and development, efficient operation, and production of the maximum total tonnage from each deposit will be encouraged.

4. Proper cognizance is taken of the fact that mine openings, buildings, and much equipment have value only when there is a mineral deposit available for working and that after such a deposit has been exhausted the equipment and openings practically become of no value.

The essential differences between the systems of taxing mines now employed in the states have been presented and in review it may be noted that:

1. The general property tax is not adapted to mines and mineral lands unless they are valued by competent appraisers, preferably working under state supervision.

2. The gross receipts tax does not secure equality and justice.

3. The net receipts tax may be desirable in the form of a state income tax applying to all property. The accounting should be regulated by state officers, preferably under civil service. The Wisconsin system of taxing incomes is recommended.

4. Tonnage taxes are unequal and unjust.

5. The statutory definitions of real estate and of personal property should be specific and definite enough to include all forms of mining property and all rights appertaining to mines, such as mineral lands, mining rights, leaseholds, plant, equipment, improvements, broken ore[1] or stored mineral, and royalties.

The important questions attracting the attention of the tax officials and mine operators are notably the following:

1. What mining property shall be taxed?

2. Who shall tax it?

3. How shall it be taxed?

4. How shall it be valued? and

5. At what rate shall it be taxed?

1. The conclusion that has been reached after an investigation of the data at hand is that all forms of mining property should be taxed according to their true present value. The practice of exempting mines from taxation does not tend, in the long run, to make the mining industry an asset to the community.

2. The question as to whether mines should be the subject of state taxation alone or of both state and local taxation has aroused

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[1] The distinction between ore in place and mined ore has been made in certain states. Few, if any, states have actually carried out fully the distinction that ore as soon as broken and while remaining underground becomes personal property. It would apparently work a hardship on a number of large mines that store underground immense quantities of broken mineral, if this material was taxed annually as personal property at its full market value. Apparently no state has yet passed upon this important question, although the courts have held that broken mineral underground is personal property.

much discussion. The weight of opinion seems to be in favor of the latter but with the rate of local taxation limited by state law.[1]

3. As most of the state constitutions prescribe that taxes upon all property shall be uniform, the general property tax has been employed extensively and is at present the prevailing method.[2] Under existing conditions it seems to be the most feasible, just, and economical method of taxing mines and mining property generally.

4. The foregoing statement is conditioned upon a scientific appraisal by officers working under centralized administration. If all property is appraised at its full value, mines and mineral lands will bear their proper share of the taxes if it is planned that taxes shall be uniform upon all property. Under such a centralized system of appraisal, the accounting problems will be less difficult for the appraiser, the depreciation of mines will be provided for adequately, and the technical problems in general will be less intricate.[2]

It has been urged that special methods of taxation should be provided for the different types of mining property. Special mention has been made of three types of producing mines, namely, (1) those operating at a profit, (2) those developed but unprofitable, and (3) those being developed. Special methods have been suggested for unproductive mineral property such as (4) property equipped but not being operated, (5) property equipped and being operated, (6) property unequipped but explored, and (7) unexplored

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1 See p 276 .

2 Prof. Taussig recommends that taxes upon real property be relegated to the local taxing bodies. (Principles of economics, II, 527.)

mineral land. From time to time property of all the types noted is appraised for the purpose of purchase or sale. There is apparently no reason why similar methods of appraisal may not be employed for the purposes of taxation. Under such circumstances there remains no valid reason for providing a special method of taxation for these types of mining property.

5. The state constitutions of a number of the states specify that the rate of taxation shall be uniform upon all property. The suggestions that the general tax rate be graduated and applied to mines assessed in an arbitrary manner according to state laws appear to be inadvisable. If mines and all other property are assessed at full value, the rate of taxation should be the same on all property.

If mines are to be taxed upon income, it is suggested that the rate be graduated according to the rate of return upon the cost of the mine or the actual paid-in capital. This suggestion is made upon the assumption that all industries and corporations will be taxed in the same manner. In this way part of the unearned increment will be taken by the state. An income tax graduated according to the earnings of a corporation which does not consider the actual capital invested discriminates in favor of the small corporation or the small mine.

Summary

Under the presumption that taxes paid upon mines are levied for the single purpose of providing the necessary public revenue, the following principles are advocated:

1. When the state constitution prescribes that taxes shall be uniform upon all property, a centralized system of appraisal, similar to the Michigan plan, is desirable.

2. When the state constitution specifies that taxes shall be uniform upon all property in the same class, all property, including mines and mineral lands, should be appraised at full value, and the taxes upon mines should be equated as nearly as possible with the tax burden upon other property.

3. When the state constitution prescribes no limitations upon taxation, the taxes upon mines should be equated as nearly as possible with the tax burden upon other property. Under these conditions, mines should be valued according to the Michigan system or, in the case of short-lived mines, the present value should be estimated according to the ratio between the income of the mine under consideration and that of a mine of the same type which has been regularly inspected and appraised.

4. When the state constitution permits taxes upon income and progressive taxation, the tax should be graduated, not upon total income but upon the percentage of earnings on the cost of the mine or on the paid-in capital of the corporation.

5. Mines should be taxed for both state and local purposes, the local rate being limited by state law.

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